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EDUCATIONAL PLANNING. PAPERS OF THE INVITATIONAL CONFERENCE (TORONTO, CANADA, MARCH 20-22, 1967).

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THIS BOOK COMPRISES THE MAJOR PAPERS DELIVERED AT A CONFERENCE ON MARCH 20-22, 1967, SPONSORED BY THE POLICY AND DEVELOPMENT COUNCIL, AN ADVISORY UNIT OF THE DEPARTMENT OF EDUCATION IN ONTARIO. THE CONFERENCE WAS ATTENDED BY REPRESENTATIVE PERSONS FROM DEPARTMENTS OF GOVERNMENT, UNIVERSITIES, AND MAJOR SCHOOL SYSTEMS ACROSS CANADA. THE CONFERENCE HAD TWO OBJECTIVES--(1) TO GATHER PLANNERS AND STUDENTS OF PLANNING TO DISCUSS THE STATE OF THE ART, ITS TECHNICAL PROBLEMS, AND ITS FUTURE, AND (2) TO EXPLAIN TO CANADIAN EDUCATORS WHAT IS MEANT BY "PLANNING." FOUR OF THE PAPERS DEALT WITH NATIONAL OR INTERNATIONAL EXPERIENCE AND EMPHASIZED ONE PARTICULAR ASPECT OF PLANNING EXPERIENCE--THE ORGANIZATIONAL PROBLEMS, THE COMPLICATIONS OF A FEDERAL SYSTEM, OR THE DATA PROBLEMS. FOUR PAPERS WERE TECHNICAL, DEALING WITH ECONOMIC ASPECTS OF PLANNING AND WITH SOCIAL GOALS. SCHEMES FOR TRAINING PLANNERS WERE THE SUBJECT OF TWO PAPERS. (HW)

Educational Planning

Papers of the invitational conference
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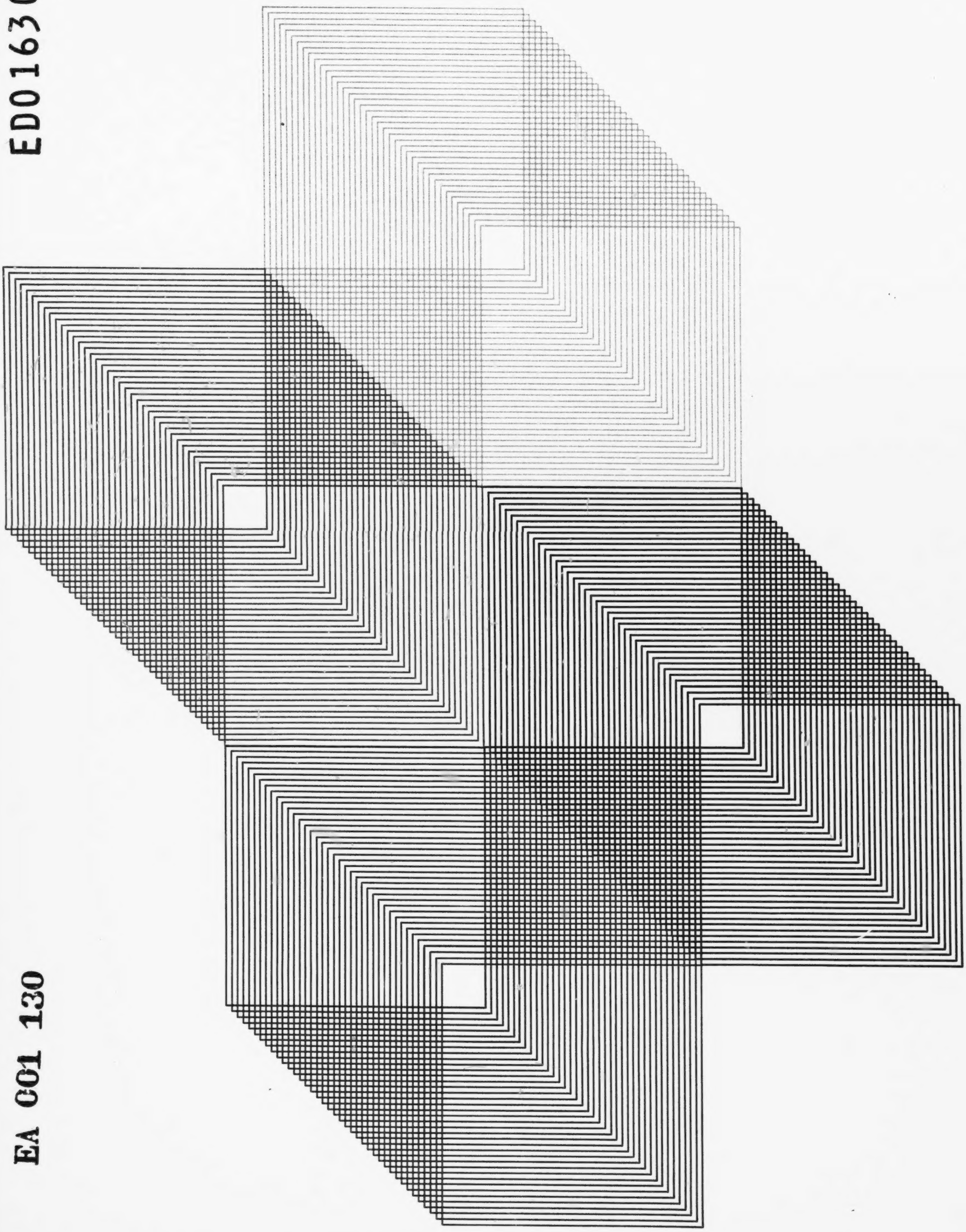

Educational Planning
Papers of the invitational conference
March 20-22, 1967

Sponsored by
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Edited by
Cicely Watson

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Preface

J. Bascom St. John

Chairman, Policy and Development Council,
Ontario Department of Education

Education has always had two broad purposes, although this has not been apparent for very long.

The older, and more generally understood, purpose has been the teaching of the primary skills of communication, mathematics and science. This purpose included the transmission of values and traditions developed or accepted by the family, group or nation at various places from historical times to the present.

A more recent, and increasingly valid, purpose has been the inculcation of skills relating to economic activity in all its forms. It has been recognized that the standard of education in any country has a direct bearing on the productive capacity and technological attainment of its people. At this stage in human history, the importance of this latter function of education has been crucial.

For the effective development of both these functions, national leaders in many states are recognizing that care and forethought must be applied to the problems of educational growth. On the lowest level, the amount of expenditure to be considered a reasonable, or perhaps necessary, share of the national product ought to be carefully calculated. Beyond that, there are the forecasts of national educational needs, the assessment of resources, the potential supply of teachers, and the analysis of the population and its geographical and age distribution, as elemental bases of judgment.

Of course, in spite of the clamour and emphasis made by those who look on education as an instrument largely intended to train productive workers, there may, and should be, a far wider vision than that. Even in a technological era, the sum total of civilized existence is not encompassed in work and industry, or in the size and cost of a school system or university, in the volume of exports, or in the Gross National Product, impressive though they may be.

What is to be remembered in connection with educational planning is that more subtle factors, dealing with people as persons, as individuals with minds as well as hands, and with imaginations as well as ambitions, must be kept in the forefront of objectives to be sought by the educational process. Otherwise planning might be more of a curse than a blessing, and might ultimately defeat itself by diverting educational effort to inadequate purposes.

It is in the light of both these substantial needs that the new science of educational planning is being developed. The adaptation of planning concepts to education is still unfamiliar in Canada, although planning as a social and political function has long been widely practised in Europe.

To advance the knowledge of educational planning principles and practices in this country, the Policy and Development Council, an advisory unit of the Department of Education in Ontario, decided to hold an invitational conference, attended by representative persons from Departments of Government, universities and major school systems across Canada. In close collaboration with the Department of Educational Planning in the Ontario Institute for Studies in Education, a program was devised and expert discussion leaders assembled, and the conference was held on March 20-22, 1967. This book comprises the major papers delivered at the conference.

Introduction

Cicely Watson

The Ontario Institute for Studies in Education
Toronto, June, 1967

In organizing the first educational planning conference ever to be held in Canada we had two objectives. We wanted to explain to Canadian educators what we mean by "planning" and have them hear of the planning experience of certain countries of Western Europe, the OECD[1], and UNESCO[1]. We also wanted to gather together some planners and students of planning to discuss the state of the art, its technical problems, and "where we go from here."

Long-range educational planning is a relatively new activity less than a decade old. As recently as 1964 when a comparable conference was held at Syracuse University the papers showed wide disagreement on definitions of planning, on the activities to be undertaken, and on the structure of the enterprise. It would be premature to claim, as some apparently do, that a new "discipline" is emerging. But at least there is now visible some consensus on what work planners should undertake, what are their major interests, and what is their role. In our program discussions we conceived of three days with three distinct characters: the first would be reminiscent, a summary of "experience thus far"; the second would be technical, the advantages and deficiences of known planning methods; the third would be speculative, planning according to parameters (social policy, educational theory) which are voiced as possibilities but are still unknown.

We cannot claim the program was an entire success. The general papers probably bored the technical experts. The technical papers probably confused the educators. A second reading of them might be rewarding for both.

We have slightly rearranged the order of presentation so that related papers are together. The first four, apart from the Minister of Education's welcome, deal with national or international experience. The speakers were asked not to try to relate planning developments in their countries to Canadian conditions (this was done by the discussants). However, their papers are intended to emphasize one particular aspect of their experience – Mr. Sandgren the organizational problems, Dr. von Mutius the complications of a federal system, and Mr. Hyland the data problems.

There follow four more technical papers – three dealing with economic aspects of planning, one with social goals – and two papers discussing schemes for training planners.

To summarize, educational planning seems to have arrived at the stage where:

a) educators accept the phenomenon, although they are not quite sure what activities it includes, what new expectations and responsibilities it brings, and what role changes may be required;

b) planners and social scientists interested in planning problems and techniques are developing a common jargon and some agreement on the range of activity and interest covered by the term "planning."

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1. Organization for Economic Co-operation and Development. United Nations Educational, Scientific and Cultural Organization.

Address of Welcome

Hon. William G. Davis

Minister of Education for the Province of Ontario

In a year I make a number of speeches about education in Ontario – some 150 or 170 probably. In their content and nature they cover quite a range. This is also true of the audiences before whom they are made. Many of these are education groups – teachers, administrators, students, trustees – others are members of the general public, parents deeply concerned about the educational experience of their youngsters. Our children spend many years in school. They are obliged by law to attend from the time they are six to their sixteenth birthday. Many attend for thirteen, fourteen or even fifteen years. An increasing number participate in full-time education for seventeen to twenty or twenty-one years. This is a vast effort. The range of our educational activity, the extent of our educational investment in Ontario, would surprise our fathers; it would absolutely confound our grandfathers!

A Minister of Education is supposed to be in some ways a spokesman for the whole enterprise, so I know you will forgive me if I dwell just for a few moments on this point. We are proud, and I think justly proud, of the educational service offered to our population.

In Ontario this academic year, as of September 1966, we have 1,364,871 children enrolled in public and separate elementary schools. When you add the youngsters in special institutional schools, those in Indian schools, etc., you have about 97 per cent of the age group 5 – 14. In the secondary schools this year we have 436,026 youth enrolled. The growth of the secondary schools in the past decade has been staggering 122 per cent. When we add to the enrolment of these public secondary schools the group in private schools, we have approximately 78 per cent of the age group 15 – 19 engaged in full time study. When in 1962 secondary education was reorganized, we planned that all but about 20 per cent of our youth would complete a high school program. This minority group, for reasons related to their aptitude and motivation, would be expected to take a two-year vocationally-oriented course. The rest would enter either a four or five year course in one of three areas: arts and sciences; science, technology and trades; business and commerce. Last year saw the first graduates of the new four-year courses. In 1966-67 there were 45,259 students registered in Grade 12 of the arts and science branch, 11, 757 in the technical branch, and 13, 609 in the commerce branch.

When compared with the year before these figures show the development of a more differentiated high school program. There has been a shift of students from the traditional arts and science area, particularly, into science, technology and trades. The comparative growth of the four-year and five-year courses shows a desirable development. The number of five-year arts and science students enrolled at the Grade 12 level shows little change. But the four-year Grade 12 enrolment is up. Last year when we had the first real graduating group in this four-year program 5,036 students were enrolled. This year there are 5,762. In the science, technology and trade branch, enrolment at the Grade 12 level in both the five- and four-year courses has increased. In Grade 12 of the 4-year course this year we have 8,688 students compared with 7,716 last year.

As you know, we have created a new set of institutions in Ontario designed primarily for these four-year graduates, *the Colleges of Applied Arts and Technology*. We hope these Colleges will play an important part in adult education in the retraining, upgrading, and enrichment of our population generally and of our labour force. They may draw some of their student body from the Grade 13 graduates. But their prime client, for full-time study, will be the student from Grade 12. Here in two-year diploma courses we will build, on the general education of the high school, specialized training and skills, and studies of a broadening and enriching nature taken in an adult atmosphere. Here we expect a high level of student responsibility and commitment. We intend in these Colleges to provide them with a real opportunity to contribute. That is why earlier I spoke of youth "participating" in education, not "experiencing" or "undergoing" education. These Colleges will become a very important part of our system of public education. We plan eventually to provide places for about 60 per cent of the age group.

In this academic year we have 60,000 undergraduates enrolled in Ontario universities and colleges, 50,000 in institutions drawing substantial public support. These represent 14.5 per cent of the age-group 18 – 21. We also have students enrolled in graduate and professional studies in publicy supported institutions. When we add them to the undergraduates they represent 10.1 per cent of the age group 18 – 24 engaged in full time university studies.

The policy of our government, which has been stated publicly on many occasions, is to provide university places for all qualified students who wish to enter. With warnings from Dr. Jackson of the numbers this might involve, we planned as early as 1962 to provide some 100,000 university places by 1970, and, as you know, some half dozen new universities have been created.

So we are no strangers to educational change in Ontario, nor indeed in the rest of Canada (though it is not my intention to speak now of the experience of our other provinces). Nor are we strangers to some types of educational planning. You cannot operate a vast enterprise such as this without considerable administrative planning. The recruitment and training of teachers, the reorganization of curriculum – these have involved planning. The provision of facilities for this tremendous expansion of the system has required planning. We have even had some long-range planning, especially at the university level.

But I think it is true to say that there are some planning techniques which we have not completely developed. The whole complicated question of the financing of educational expenditure has need of continuous study to effect planned changes; constant adjustment, evaluation, and control. There are new budgeting techniques to be explored. There is the question not simply of providing places for youth in these various institutions in the desired numbers, but their allocation *according to needed skills*. It is not in question *that* they study, and that public funds help to provide their facilities and their support, but we need to try to determine more precisely *what* they should study and how – what should be the process, given our new technical knowledge and these vast numbers.

I welcome this conference, ladies and gentlemen. I approve wholeheartedly of the enterprise of our Policy and Development Council. We need to look at the experience of other countries to determine what is of practical value in our setting. We need not be ashamed of imitating, of "lifting" the advances others have made and applying them to our activities. We have always believed in accepting a good idea no matter what its source. In doing so we remain true to the enterprising spirit of our forefathers. We have never been too proud to learn from others, and we are conceited enough to think that we have improved on their enterprise so that others in turn learn from us.

This is particularly true of our educational traditions. Ryerson, of course, is the best historical example. Working within the conditions of his time he planned and created a system – and implemented it in an orderly fashion – that included teacher training, courses of study, curriculum materials, textbooks, grants to encourage boards, examinations, a system of inspectors, and so on. He adapted for the rural society of Upper Canada the educational innovations of Europe and New England. One other "borrower" we might cite was James L. Hughes, Superintendent of Education for Toronto, who was one of the first in North America to realize the value of the kindergarten and who planned for its inclusion in our system. But I do not want to bore you with an account of our educational history.

To this conference I welcome the speakers from Sweden, Germany, Ireland, and the United States; and, in particular, Dr. King and Mr. Raymond Lyons – the former to speak of the experience of the Organization for Economic Co-operation and Development, and the latter from UNESCO's International Institute for Educational Planning. We welcome this opportunity to learn of your work.

There are several other "needs" which I see this conference as serving. In economic terms (which it seems we are all using these days) there are other "returns" which I anticipate from this "investment" of time and money. Let me just briefly mention some of them.

1. If there is a need for planning beyond what we now do, we must come to some agreement on what is meant by this term. I am told that in 1962 UNESCO and the International Bureau of Educational Planning published the results of a survey of seventy-five countries (including Canada). Each country completed a questionnaire about its planning activities – what was the range of work, who did it; what was its primary aim, its relationship to the educational administration, and so on. Forty percent of the countries reported that they undertook educational planning. It was obvious however that what planning meant from one country to another was quite varied – all the way from planning next year's budget or a minor revision in the course of study to 10- and 20-year plans which were an integral part of national plans for economic growth or social improvement. Some were highly centralized, with controlled and evaluated implementation.
2. And when there is consensus on what planning means in a theoretical sense, there is need to study whether there are certain activities and responsibilities "necessary and sufficient" for planning in all situations, or whether planning in a country with educational traditions such as ours means something quite different from planning in a country such as France, which has a highly centralized education system.
3. Then there is the question of traditional policies, other than educational ones. I presume when we speak of educational planning that we are not talking about an authoritarian controlled system of economic planning such as there is in a communist country. But in the democratic countries of the west there is wide variation, from tight economic five-year plans to loose indicative planning and economic growth guidelines. Does educational planning necessarily take the same form regardless of the degree of economic planning?
4. Let us agree that planned educational change is preferable to unplanned random evolution. And let us leave aside, for once, all the clichés about the pace of change accelerating and the knowledge explosion getting out of hand. Long-range planning is difficult. It is fraught with technical dangers, as you well know. Much discussion is needed to decide how best we might use these techniques. Serious study must be made of the relationship of planning and research into planning problems, of the planners and the administrators, and of the best training and use of such personnel.
5. Planning, as I see it, is a combination of rationalization, prediction, and good judgement. No one likes to be "planned," to have his work subjected to budgeting scrutiny, to have his decisions reconciled to, and modified by, the needs of the whole system. Traditionally some of our educational institutions have enjoyed complete autonomy. In our complex world they can no longer live alone, a law unto themselves. Decisions their directors make affect us all. And they are affected equally by the decisions we make. A good example of this is our universities. In their recent publication *From the Sixties to the Seventies*, the Committee of Presidents of our universities recognize this fact and recommend a Commission to study and plan for the whole field of post-secondary education in this province. Listing the reasons why they have made such a recommendation they say, "The fifth reason for some sort of master-planning effort is that it is probably the only way to preserve the complex, differentiated, unregimented system we have got. It is possible to plan for autonomy and differentiation among the institutions in the province." (pp. 95-6)

We are not alone in our educational problems, ladies and gentlemen. Every highly industrialized nation faces similar ones, even our affluent southern neighbour. And the educational problems of the emerging nations are probably different only in degree and detail. We all find our systems of public instruction a tremendous financial burden. We all face problems of numbers which arise partly from population growth and partly from people's thirst for education. The relationship between education and wealth, both private and public, seems well established. The old economic problem of allocating scarce resources (human and capital) among competing claimants is with us all. No one can tell us how to expand the system without facing a teacher shortage. No one can avoid looking at benefits as well as costs, at output as well as input.

I wish you success at this conference. Making our system sensitive to needed change and predicting the long-range implications of alternative decisions are not easy tasks. An exchange of views, frank discussion between administrators and technical experts about the state of the art, can only be useful.

Educational Planning and Development an International Approach

Alexander King

Dr. King is Director for Scientific Affairs, Organization for Economic Co-operation and Development, Paris.

I shall give a historical summary of the progress which has been made during the last seven years at OECD in Paris with regard to educational planning and development.

Our work started at the time the first sputnik went up. There was a fear that insufficient numbers of scientists and engineers in the European countries might have grave consequences for the future economic development of the countries, particularly in comparison with the Soviet Union and the United States. A number of surveys were made to determine whether and where shortages existed. These surveys turned out to be rather disappointing. Not only are international comparisons of education notoriously misleading, owing to differences in the definition of categories and of equating the quality of the various qualifications in different systems, etc., but we soon found that the game was hardly worth the candle because such surveys are usually based on statistics two or three years old, while the length of the educational cycle is such that it takes about ten years to overcome shortages. This means, therefore, that measures to remove the shortages would be thirteen years in arrears, by which time technological change would have caused quite other problems. Therefore, we attempted a projection method. At that time there had already been one very interesting achievement in this direction: the work of Frederick Harbison, who wrote the planning chapter for the Ashby report on the educational needs of Nigeria. In OECD we commissioned a small team consisting of an economist, Professor Svennilson of Stockholm, an educational statistician, Professor Edding of Germany, and an educational policy maker, Lionel Elvin of Britain, and we suggested that this team make a projection of the general increase in educational expenditure which would be necessary if the European countries were to achieve certain growth rates in their economy by 1970 (compared with the 1960 levels, the date the work started). This report, which has become known as the Svennilson Report, was then presented to a *Policy Conference* in Washington – so called because the team was asked to present their findings to a group of policy makers of two sorts, financial policy people from the various treasuries, and senior administrators from the ministries of education.

Much to our surprise, there was general acceptance that education should be regarded as an investment as well as a consumption item. All this was based of course on the "residual factor" approach to economic growth; namely, the conviction that more than half the economic growth of the last decades in industrialized countries is due to factors other than increase of the simple classical inputs of labour and capital, to improvements in the *quality* of labour, particularly those due to scientific research, technological innovation, education and training.

The Svennilson Report Indicated, very approximately of course, that if the European countries were to achieve their goals of economic growth for the next decade, an approximate doubling fo educational expenditure would be required. This level of investment, while somewhat alarming, was not considered impossible because the increased economic growth to be expected in the meantime would ensure that the *percentage* increase of national expenditure on education was reasonable. The political importance of the Washington Conference was great, mainly because it coincided with the beginning of a decade of a very rapid education expansion. The connection between education and economic growth which was advocated and accepted gave the ministers a major argument in their negotiations with their finance colleagues. It gave them, in fact, a place in the investment queue. A few years later the European ministers of education, meeting at conferences in Rome and then in London, accepted the investment approach to education and agreed to set up in their ministries economic planning units to look at the investment and planning aspects of their work. This laid the base for serious educational planning.

Meanwhile, OECD had commenced a major experiment in practical planning of educational investment in a number of its Mediterranean countries to see whether a manpower forecasting approach was in fact feasible. This scheme, known as the "Mediterranean Regional Project," was one of the largest social science research projects ever established on an international basis. It involved planning of the educational investments of six countries – Turkey, Greece, Yugoslavia, Italy, Spain and Portugal. To indicate the depth to which this work was carried out, it should be mentioned that in Greece, for instance, the project required some 12 to 15 economist-man-years of work over two-and-a-half years. The scheme depended on an agreement between OECD and each participating member country to set up an economic investment planning team for education on a 50-50 financial basis. In all cases the members of the team were nationals of countries concerned, although their work was very often reinforced and complemented by help from international experts of first quality provided by OECD. This use of native economists made it more probable that the results would be accepted by the national decision makers who can so easily discount as irrelevant the recommendations of foreign experts.

Furthermore, the directors of the six teams met together quite frequently during the life of the project to compare and elaborate their methodologies, to seek advice from each other with regard to problems, and in general to build up an approach and a mutual confidence in their work.

Also it is interesting to note that, in most of the cases, the work was undertaken not within the ministries of education but in the economic planning organizations of the countries. Indeed the ministries might have been too traditional for the inception of such projections, but the planning organizations, established since the war, were peopled with young economists much more open to new ideas. In many of the countries the work was indeed gradually assimilated by the education ministries, and in nearly all these countries planning work now continues within the ministries of education as such.

The general approach to this work was to calculate economic and demographic projections broken down as far as was possible by sector – but of course this could not go into great detail – and from this to attempt to outline a manpower structure which would be necessary for the achievement of economic goals by 1970 and 1975. The attempt was then made to translate the results from these manpower structures into educational terms and to estimate the investment this represented – the number of schools and teachers, extension of universities, creation of technical educational facilities, etc., necessary to provide the manpower without which the economic objectives could not be attained. In fact, the Mediterranean Regional Project provided guidelines within which medium and short term plans and policies might be carried out. In most cases the plans were debated by the national parliaments.

Interest in this project led to an attempt to apply the same techniques in another environment. With the help of the Ford Foundation an important experiment was carried out in Latin America where comprehensive long-term educational plans were prepared for two countries, Peru and Argentina. A similar probe was later made on the possibility of defining the technological prerequisites for success of the economic plans of the Mediterranean countries. This work is just about complete.

Of course, the educational investment and manpower approach which has been very closely associated with the name of OECD met many immediate objections. First there was the fear that, as a result, education might be dominated by economic needs and its cultural values subordinated. In fact, OECD never pretended that the manpower approach was a unique approach, merely that it was a useful and important method which should be developed in such a way as to also take into account social, cultural, and other needs. This was very clearly demonstrated later. Then there were many criticisms of a technical nature. The first questioned the relevance of manpower forecasts to education expansion. Then there was a group of criticisms concerned with the method – with the validity of the projections in face of the substitution of skills and of productivity and technological changes.

It is indeed evident that the social demand and economic aspects of education are very closely linked through the vocation element in social demand. Parents and children very naturally want to ensure that education will lead to excellent employment possibilities. What is difficult is to ensure that the advice given is wise, and that vocational choice is not determined entirely on the parent's experience of his own circumstances, probably no longer valid. This argues the need for strong vocational guidance systems, deeper than is common at present, and taking into account technological and manpower forecasting and other factors which will have great relevance to the nature of the economy and of employment when children are ready to leave the education system.

Social demand, while accepted in most of the industrialized countries as the *main* basis for educational planning, can of course run counter to social policy. Social demand may come predominantly from the affluent part of the community, already favoured in education, and be feeble among the underprivileged groups, thus hindering rather than helping policies of democratization of education. In the educational investment program which was mounted by OECD for countries other than the Mediterranean Region (i.e., highly industrialized countries) the social demand approach was the dominant feature. Nevertheless in many instances manpower projections were undertaken either for specific parts of the educational system (especially the higher levels) or particular employment and skill groups such as doctors, teachers or engineers. The educational investment program for these countries consists mainly in exchange of experience regarding planning possibilities and individual plans. Particularly countries engaged in major planning exercises at an early stage submit their plans to a group of experts from the other OECD countries. The plan is subjected to scrutiny; constructive criticism and ideas are offered as to how it might be modified or improved.

The educational investment program discussion of plans is thus at a distinctly professional or technical level. In addition, a series of country examinations have been undertaken, whereby such plans are discussed at the policy level. In these country examinations, a number of outstanding experts from different parts of the OECD region visit the country under examination to discuss the plans, problems, institutional trends, experiments with educational authorities of all levels. They then write a report which generally terminates with a series of questions. At a later stage a so-called confrontation meeting is held at the OECD headquarters in Paris, where a group of senior educationalists from the country under examination faces cross-questioning for a period of a day or more by the experts who visited their country, in the presence of representatives from the educational systems of all the other OECD countries. This approach has very interesting and, I think, very useful consequences, in that it gives guidance and criticism of a constructive kind to the country being examined. At the same time it demonstrates new approaches, new institutional experiments and research possibilities to the other participating countries. For these reviews to be really useful they must be conducted in an atmosphere of complete confidence. In general this has been achieved, with the result that both the representatives of the OECD committees and the Secretariat have acquired a detailed knowledge of the systems, problems, policies, failures, and experiments of all the countries within the OECD membership.

Turning for a moment then to the various approaches of educational planning, may I suggest that for countries at different stages of national development different combinations of approach are required. One can distinguish three stages: firstly, the really underdeveloped countries where resources are very scarce, grossly inadequate in relation to needs. In such countries that are seldom satisfactory statistics and policies are made essentially on political grounds. For example, in considering the amount of resources to be allocated for secondary education versus the general needs for abolishing illiteracy – planning in the sense we have been discussing it has very little place in such a decision. Matters of prestige and local politics dominate. To cite another common example, it may be decided to set up universities based on the patterns of the metropolitan countries of Europe or North America, rather than devised specifically for the immediate needs and environment of the country in question. But even in such a case, once this choice has been made, careful detailed planning is extremely important as to rate of implementation and the detailed allocation of resources within the politically predetermined framework.

Countries of the second category, the developing nations exemplified by the six countries of the Mediterranean Regional Project and many Latin American states, are quite different in their approach, quite different in their needs. Here, resources and educational structures exist, sometimes with strong and honourable traditions. But because their state of development is still modest, social pressures for education come mainly from a very small proportion of the population. The immediate need is for economic development to produce greater resources, which can then make possible a much broader approach to education, thus generating eventually social pressures for more education. The manpower approach is probably the most appropriate approach as the first phase of development.

In the third category, the highly developed countries, social pressure has already developed because of the sufficiency of resources and general prosperity, and it dominates the planning. Here the main requirement is for choice between alternatives. While social pressure planning may be the most important general approach, detailed manpower projections are required especially for the higher professional levels, and for specific sectors of the economy.

We now have reached the end of the primitive or naive stage of educational planning: a rapid development considering that the whole activity is so new. The need now is for clarity of objectives and criteria, understanding of the diversity of approaches and techniques and their choice in relation to the specific problems arising in different parts of the planning function or in different parts of the educational system.

Let us return for a moment to the residual factor approach. In the naive phase it was accepted that research and education were necessary as impluses of economic growth and as important national investments to be encouraged in their own right. Now, however, questions are being asked both with regard to research and to education. Research is an excellent thing, but what research? how much research? and for whom? and by whom? Quite rightly – because it is clear that scientific and technological research may even act against the needs of the economy. There may, for example, be too much expansion of fundamental research in comparison with applied research; too great a proportion of the nation's wealth spent on military matters or on reaching the moon; too much on subjects of fashion, to the neglect of basic if less glamorous subjects which can contribute greatly to economic growth. In education, similarly, one can question whether it is always advantageous to the economy as well as to the society. As with research the question arises. What education? For whom? Towards what ends? In some countries the education system may inculcate a social rejection of practical work and a bias towards theoretical activities which may be strongly against the national interest. In other countries distortions in the educational system, due to long traditions may lead to the production of a quite unnecessarily large proportion of, say, lawyers.

Therefore, educational planning must now grow deeper, more subtle and diversified, and become interested in the fine structure of the system. The past decade has been dominated by very rapid expansion of the educational system. This is now levelling off in many countries; financial and other constraints are appearing. Now planning has to determine action within these constraints, to balance the use of resources between competing objectives.

One now can distinguish three special points of emphasis: the internal efficiency of the system, its external efficiency, and the utilization of its output. As an example of internal efficiency, i.e., the productivity of the educational system, may I mention the question of school buildings. It is quite clear from some of our work in the Mediterranean countries that schools can be constructed with far greater functional efficiency as educational instruments than those of the present, and with a saving in financial terms of at least 30 per cent. Other aspects of internal efficiency include the optimum use of school buildings, as well as the optimum use of teachers; in both cases our approach so far has been dominated by tradition. There is much research going on in these subjects. For example, the work of Torsten Husén in Sweden indicates that the efficiency of learning does not increase with the number of teaching hours to which a child is subjected. Then again there is the need to find the relationship between various factors with regard to dropouts, repeaters, etc. As in other areas, there is always the decision between alternative choices. This may give rise, inevitably will give rise, to a number of conflicts. For example, there is conflict between the need to develop a comprehensive approach to education for the underprivileged, and the need to stress better and higher quality education for those already privileged to receive a considerable amount of it.

External efficiency concerns the numbers and qualities of the product of educational system in relation to the social and economic objectives determined by the country. This, of course, is the whole matter of the appropriateness of the education provided – its appropriateness to the needs of society, the economy, the individual.

Here greater attention must be paid, as in manpower forecasting, to the changing nature of technology, and hence to the changing employment possibilities. The technique of technological forecasting is advancing rapidly. It ought to be possible soon to project future needs with much more precision. Utilization of the output is also a complicated matter, closely connected with the complementary function of maintaining the quality of output of the educational system. Continuous education, adult education of various kinds, and life-long learning are becoming more and more necessary with the rapidly changing nature of the skills demanded by the economy. No doubt in the next decade we shall see emerge some understanding of what these involve.

The institution of refresher courses of various kinds, regarded not necessarily as obligatory but at least as habitual, will have a considerable feedback importance for the formal stage of education. Indeed, the need for continual education through life necessitates a radical change in approach to the training, for example, of teachers, managers, engineers, and doctors. These can no longer be given a packet of education and technique to last for their whole life, but must rather be given the basic knowledge, the intellectual disciplines as well as the techniques, necessary to launch them in their employment. At the same time their approach to learning must enable them to continue their education at various times throughout their career.

Perhaps the most important result of educational planning has been that it has focused attention on the system of education in its totality, the examination of its various elements and their interaction. This is gradually leading to the application of systems analysis to the educational system and to the construction of mathematical models which enable us to see the flows in education. For the first time it is being considered as a dynamic rather than as a static system. Planning is also leading to the re-appraisal of the aims of education at all levels, stressing adjustment to the needs of the economy, the society, and the individual.

By its very nature, education is a high inertia system which changes slowly. It also has an extremely long cycle. People born now will be teaching those who will be economically active in the middle of the twenty-first century.

Teachers teach what they were taught by their teachers so that the inbuilt inertia of the system makes it slow to adapt to the changing needs of society. From its roots in learning, through the Renaissance till very recently, this was perfectly satisfactory. Education was regarded mainly as the means of transmitting to successive generations the experience, culture, and tradition of the past. Now, however, in a world of rapid change – change which is complex in character, being economic, social, political, scientific, and technological – this is no longer sufficient. The content of a subject of study may change in a fundamental way, even while a person is within the educational system. Education now may well be running some thirty to fifty years behind contemporary needs.

On the other hand, education is big business; it is one of our biggest industries. In most countries, it is the largest single employer of manpower. It demands the greatest percentage of government expenditure and is the most rapidly expanding sector. Yet, with the possible exception of the building industry, education is the last to submit to the scientific revolution. In contrast to other industries it is becoming more not less labour intensive. But the revolution in education is near – a revolution due not only to techniques which may change the very nature of the teaching process, but also to the impact of external pressures, economic and social, on the system. All this is likely to be speeded up by the planning process.

As far as educational techniques are concerned, we know very little what the future has in store. One can imagine computerized techniques of teaching very different from the present. Still primitive programmed learning and teaching machines might lead to individual tuition because of the feedback possibilities of the computer. They could also make the conventional class and classroom obsolete. Rapid changes in industrial patterns with their changing skills needs may determine a new approach in which the qualifications provided by the educational system are themselves of a temporary character. Already there are certain institutions in Europe which after a period of training give a diploma valid only for three to five years, after which it lapses unless renewed by the attendance of further courses and the passing of further examinations. All these impending changes suggest that there is urgent need to provide educational systems with a built-in mechanism for continuous innovation. By innovation, I do not mean only curriculum reform, but innovation in training methods and techniques, in the management of the system and in the introduction of new technology. There is a great need for research. It is probable that, in the future, research for the educational system will depend not mainly on the educator. Many other disciplines will contribute – the economist, the statistician, the sociologist, the psychologist, the anthropologist, the physiologist, the engineer, the mathematician, and others.

In view of the inertia of the educational system, and the vicious circle of static perpetuation, it is important to look at places within it where we might break in with innovation. One entry, of course, is the teachers' training college. It is not suggested necessarily that a revolution in the methods of teacher training should be attemped immediately, but that the concept of and feeling for innovation should be inculcated. Young teachers should be given an open-mindedness, a receptivity to change which will serve them throughout their career and enable them to assimilate the new ideas coming from research. A further place for special effort is the administration of the system. In most countries there is a need for staff colleges for educational administrators where, again, innovation should be encouraged and prepared for from the very beginning.

I would like now to spend a few minutes discussing higher education as an example of some of the features I have been mentioning. Here, I think, we are at the stage of re-assessment of the objectives of the university and other forms of higher education. It is generally assumed that the main function of the university is essentially cultural and instructional. However, increasingly it is obvious that the vocational elements of university education are almost equally important. This of course is entirely appropriate. It is at the university, and perhaps only at the university, that theory and practice can interact. Nevertheless, the importance of the professional vocational aspect of university teaching is very often ignored or underestimated in academic circles. A third university function is research, growing very powerfully from the start in the natural sciences made in the German universities at the end of the last century. In some countries it has developed to such an extent that it dominates the teaching function, so that the professors regard term time as an unnecessary intrusion into their real vocation of research. The surge of research in recent decades has, of course, been one of the main sources of change in our society. The expansion of learning which has resulted is naturally an extremely precious part of the whole university enterprise. But it should be in balance.

There are many other important functions undertaken by the university. For example, it has a social regulating function of the greatest importance. A university system with its methods of selection for entry, the nature of its teaching and so on, may be a major means of maintaining a particular social structure and elite, of changing a social structure, or even of creating a new one which may or may not be appropriate to the needs of the society as a whole. The latter is clear in some of the underdeveloped countries, where the university is producing a new element of society, not too well related either to the traditions and culture of the particular nation, or to its pressing needs for economic development. The university remains one of the few vigilance points of our civilization, questioning accepted values, beliefs, ideas. This is a very precious function and will become more so as we become more complicated and more affluent. It may be a powerful deterrent to that decadence to which all prosperous societies have finally succumbed.

A further function of the university is in its relation to the economy, to the market place. In some European countries, this relationship is extremely tenuous if it exists at all, whereas in the United States there seems to be an unwritten agreement between universities and society that the independence of the university be respected and its resources forthcoming, but that the university on its part must accept responsibility, must be willing to advise, to diffuse its knowledge throughout society, and act as an inherent and dynamic part of a developing community. In many countries the question now arises whether a single institution, the university, is appropriate to operate in one place and with a single approach all these diverse functions, or whether there is a need for diversification of higher education.

Change is difficult here as elsewhere. It is somewhat ironic that the universities, which have generated so dramatically the changes which have transformed our societies and individual lives, are in fact more resistant to innovations than the rest of society. In Europe the question of the so-called technological gap with the United States is at present under intensive discussion. It appears that education, and particularly university education, may in fact be one of the main keys to the attitudes and skills – lack of skills – leading to the creation of this gap. Hence, the need for university reform. The need to consider the university's relationship to society as a whole, and to the future rather than the past, is dominant.

In conclusion may I say that in a changing and highly complex world, we are facing new problems which are inevitably and essentially multivariant in their nature. For example, problems such as urbanism, automation, or the technological vitality of nations cannot be attacked successfully by the conventional means of a particular discipline. In our future world we will see many such problems in which the economic, social, technological, scientific, educational, and managerial elements are all important. This is true of education itself in its impact with all the other elements of national policy.

It is necessary therefore that education be considered at the highest point of government, in relation to the total necessities of national development. Education now is too important to be left just to the minister for education. It is a matter for him in relation to the whole cabinet, since his work has significance for so many elements of national policy. These circumstances demand an educational strategy based on planning, on the consideration of alternative paths. The situation is much the same as it was with operational research during the war. In their analysis of situations, operational research workers were able to provide the high command (the decision makers) with a firm basis upon which a decision could be taken. The success of this approach depended on mutual confidence between the decision makers and the operational research workers. Exactly the same relationship is required for educational planning, the planners providing administrators with data, the basis for decision, showing the alternatives between which choices must be made. Close relationship and confidence with those who make policy decisions can ensure that analysed factual data is provided before decisions are taken. Educational planners will become increasingly influential for policy determination, and can in fact become a mainspring of national development – but only if their techniques are deepened, their competence widened; only if they are open to innovation and, above all, if they are courageous.

The Organization and Implementation of Educational Planning in Sweden

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Introduction

The Swedish educational system has been radically changed during the past 15 years. When one wishes to give a picture of the relationship between educational planning and policy and decision-making in Sweden, it is, therefore, necessary to devote a great deal of attention to the reform work. It is of course impossible in a short speech to describe in detail this work and its results. Neither is this necessary when the purpose is only to illustrate how the planning mechanism works. So I will restrict myself to a brief description of some ad hoc reforms which have led to the present situation.

First, here is some general background information about Sweden.

Sweden is a large country, almost the same size as France. Our population, however, is very small (less than 8 million inhabitants compared to nearly 50 million in France). A large proportion is concentrated in a few urban areas while the rest of the country is very sparsely populated.

The Swedish economy is based on a highly developed and diversified industry. Agriculture employs only a small proportion of the labour force. The standard of living is high. In this respect, and generally – linguistically, socially, religiously, and politically – the Swedish people are rather homogeneous.

For many years the political situation has been very stable. The reforms of the Swedish education system in this century have, in the main, been decided upon and implemented without serious conflict. In fact, the reforms usually were the product of fruitful public debate and constructive collaboration between representatives of various public groups and political parties. A special and very important role has been played by the so-called Royal Commissions, the ad hoc committees established by the Government to investigate some problem and recommend solutions. In my country such commissions are not a device for shelving a politically hot controversy. There is some commitment to implement the recommended reforms.

The Swedish educational system is almost entirely public. Today it consists mainly of the following:

1. A nine year compulsory, comprehensive school with a core curriculum. In the final grade tentative choices for subsequent specialization are tried out before proceeding to the more specialized upper secondary education.
2. Secondary education organized in three major sectors: the "Gymnasium" (three-year or in special cases four-year programs), the "Fackskola" (two years), and the vocational school (one, two, three, or sometimes four-year programs). Each of these sectors provides several alternative courses.
3. A university system supplemented by a variety of higher education professional schools for technology, social work, teacher training and educational research, art, music, etc.
4. A complex of adult education institutions and programs, which are financed from public funds.

Together these parts are intended to function as an integrated system in which standards, content and allocation of resources should, as far as possible, be uniform throughout the country.

Let me also say a word here about the administration which manages and serves the system. I will refer later on to administrative organization in some detail.

The Swedish *Ministries* are rather small compared to ministries in most countries. For example, the Ministry of Education which is one of the largest only has a staff of about 100.

Independent *National Boards* perform many of what are ministerial tasks in other countries. For the school system there is a National Board of Education (NBE). This Board has a staff of approximately 500.

Under the NBE the school administration and planning for each county is headed by a state authority. There are some 25 such *County School Boards*. At the municipal level there are *Local School Boards* (about 1000) responsible for primary and secondary education.

The office of the University Chancellor is responsible for the overall planning and administration of higher education.

Under other ministries there are some national boards of importance for educational planning, e.g. the Central Bureau of Statistics responsible for educational statistics, and the Labour Market Board. Within the CBS is the Forecasting Institute.

The Royal Commissions School Reform

I can best illustrate the distribution of work and responsibility among the authorities involved in educational planning – primarily Parliament, the Royal Commissions, the Ministry of Education, and the two national boards of education – by means of examples of recent reforms of the school system.

As long ago as 1948 a special committee, the 1946 Royal School Committee, made recommendations for the reformation of the Swedish educational system. The first committee chairman was the present Prime Minister, who at that time was Minister of Education. Several other members of the committee were influential politicians from various parties. This illustrates one important facet of the reform process. Involved in the reform study are the political figures who will "sponsor" the reform proposals in the House. The membership of this particular committee also testifies to the political importance attached to its task. Investigations into reforms of the system had, in fact, been going on since the early 1940's and there was consensus that reform was absolutely unavoidable.

In 1950 Parliament decided that nine-year comprehensive schools should be established on an experimental basis. The first such schools were founded in the early 1950's and their number was rapidly increased.

By 1957 when another School Commission was set up under the chairman of the present Minister of Education a considerable amount of research and experimental work on these schools had been reported and many years of actual operation had been experienced. This Commission included representatives of all political parties and some important labour market groups. Its task was to make a summarizing inquiry into the future form of compulsory education – based *inter alia* on an evaluation of the experimental schools. One may describe the work of this commission – and all the more important commissions – as a dialogue between politicians, planners and research workers. The commission sponsored educational research on a massive scale, intended primarily to elucidate the crucial and often controversial issues.

Most of the studies concentrated on the problems of "differentiation" or "streaming" i.e., if, when, and by whom the division of the pupils into separate courses should be undertaken. Later I will come back to this problem and the solution we have decided to try in Sweden.

Other studies dealt with questions related to the curriculum, and others examined a number of problems concerning teachers, class size, and educational achievement.

This scientific work has, indeed, contributed to shaping the new comprehensive school in Sweden. However, it must be pointed out that none of the studies could provide a very solid foundation for the policy makers. It has been said of the studies that their "foremost importance lay in the fact that they have contributed to removing a host of prejudices and showing that what was involved in the debate were value judgments rather than facts. The school reform is, after all, a political question."

A great many other studies concerned with planning problems were undertaken by the 1957 School Commission, such as projection of the need for material and human resources.

The Commission submitted its final report in 1961. It contained detailed proposals of the objectives of the comprehensive school, its structure and function, curriculum and timetable, a plan for its introduction (including costs, staff, building and equipment requirements), and recommendations for new school regulations.

The inquiry obviously had been a very wide one. The commission had been served by a special secretariat and a large staff of experts composed of educational administrators, research workers, teachers, and others. The commission also co-operated with the National Board of Education which carried out the investigation of building needs.

The work of the Commission was implemented by the Education Act of 1962. Compulsory school attendance was extended to nine years. The new comprehensive school, the "grundskola" ("basic school"), is common to all children and young people and of a uniform type all over the country. The school-leaving age was fixed at sixteen years. This comprehensive school replaces the earlier seven- or eight-year primary school and the junior secondary school.

According to the plan the new system would be completely established by the early 1970's. However, already in 1966-67 it has been introduced in municipalities serving more than 95 per cent of Sweden's inhabitants.

A basic principle of this new school in Sweden – you might even call it a general objective of Swedish education – is the right of all pupils to develop their personal talents and interests. In other words the school is committed to providing "individual education." Applied to the comprehensive school, this principle led the 1957 School Commission to recommend that the choice of optional subjects and streams be made with complete freedom[1]. This principle, accepted by the Government and Parliament, stipulates that a pupil's courses are to be decided by the parents in consultation with the pupil after information has been provided by the school.

The free choice principle is an answer to the problem of differentiation, which I touched upon before: namely "how" and "by whom" are pupils to be "differentiated" into streams.

I would like to point out here that this is a crucial problem of planning, one which concerns the whole education system, to balance the needs of the individual and the needs of society and the economy. The wish to offer to the individual a broad choice of study programs and subjects in order to adapt education to his personal requirements and interests, leads to the needs to organize the differentiated part of schooling into units large enough to provide the organizational basis for such diversity. In a sparsely populated country like Sweden this necessitates cooperation between municipalities. This has undoubtedly been a major factor in the recent trend in Sweden to amalgamate into larger administrative units.

This was of special importance in planning the reform of the upper secondary school system, which I am going to use as my second example to illustrate the role of the ad hoc committee.

Before the recent reforms there were two main sectors in the secondary school system in Sweden – the "gymnasia" of three types (general, technical, and commercial) all characterized by strongly theoretical "academic" courses; and a group of strongly practical vocational schools. To a certain extent one is justified in referring to a "gap" in the system at this level. The 1962 Education Act, which created the comprehensive school, filled this gap with a new type of school, the 2-year "fackskola."

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[1] The new school has three departments: lower, Grades 1-3; middle, Grades 4-6; upper, Grades 7-9. In the lower and middle all pupils take the same subjects taught by a single classroom teacher. In Grades 7 and 8 some optional subjects are permitted. In Grade 9 the students are differentiated into nine streams or programs, four practical, five more theoretical.

For the over-all planning of upper secondary education and the detailed planning of reforms in the "gymnasia" the 1960 Committee for the Gymnasium was appointed. Its chairman was the present Chancellor of the Universities, and the members included representatives of all political parties, labour market groups, the universities, and educators.

The detailed planning of the "fackskola" was undertaken by a special committee working in close co-operation with the Gymnasium Committee. The committee to reshape the vocational school is still working.

In 1963 the Gymnasium Committee published its principal recommendations. Again they were based on a large number of studies of statistical and psychological-pedagogical nature which had extended over several years. Since upper secondary education is voluntary, the committee's research emphasized quantitative problems. For how large a group of students should upper secondary education be planned? How many would attend the different sectors? The committee's studies tried to elucidate such questions both from the point of view of individual (social) and of economic demand. For example, a forecast of manpower demand was made in co-operation with the Labour Market Board.

On the basis such studies a development program was drawn up by the Committee. It was considered probable that the demand for a relatively theoretical broad education, based on the comprehensive school training, would increase vigorously. According to the Committee's plan, by about 1970 some 50 per cent of the 16 – 18 age group will be enrolled into the "gymnasium" and "fackskola" together. It was recommended that by 1970 approximately 30 per cent of the age group should enter the "gymnasium" and 20 per cent the "fackskola." A further 25 to 30 per cent would attend vocational schools.

The unity of the upper secondary school system was strongly emphasised by the Committee. The different educational programs and institutions must constitute a coherent system. The division into three sectors serves practical purposes only; they are not designed for entirely different categories of students. To implement this unity, concrete measures were suggested such as the creation of transfer possibilities between the sectors. The entrance requirements for the three sectors should, in principle, be similar. The "fackskola" should always be established in places where there are "gymnasia" and as a rule nowhere else. As a rule the "gymnasium" and the "fackskola" should be housed in the same school building and have common teachers and administration. In the long run this will also include to a large extent the third sector, the vocational schools. Finally it should be possible in later life to continue upper secondary schooling through adult education. Pupils from the "fackskola" will have the possibility of continuing their education so as to complete a "gymnasium" course. The bill on the reorganization of upper secondary education which was submitted to Parliament in 1964 was almost identical with the recommendations of the two committees.

The basic principles governing the new upper secondary school system fit rather well into the general objectives of the comprehensive school. However, there are some important differences. Even though the aim of "individual education" is of great importance for the upper secondary school, the principle of free choice, of course, is not yet accepted at this level. The reason for that is evident. As long as the educational system does not command unlimited resources, a selective procedure must exist at some point. Where it is placed is above all a matter of economy. At present Sweden has set the selection at 16, when compulsory schooling has been completed. There is definitely no magic about this age, no scientific basis for the choice. Our policy is based entirely upon an assessment of what we can afford, not only financially, but primarily in limited human resources.

The process of post-war educational reform in Sweden should be clear from what I have said. The Government – in practice the Ministry of Education – take the initiative by establishing a Royal Committee or Commission with broad terms of reference. The Commission which is representative of all responsible and interested groups in the community, arranges for feasibility and research studies into all major controversial and technical aspects of the problem. When the report of the Commission is delivered it is sent for public discussion to the authorities and organizations concerned. When there is reasonable consensus, and taking their viewpoints into consideration, a bill is written which the Government submits to Parliament. The decisions of Parliament concern main principles.

The Implementation of Educational Reform

What is the role of the permanent administrative bodies in the reform process? Their staff may from time to time be involved in the work of the commissions, e.g. by carrying out special studies. However, their main task, as a rule, is to effect the detailed implementation of the reforms. Thus it is mainly within the two boards – the NBE and the Office of the University Chancellor – that detailed planning takes place. The Commission had already undertaken some planning, mainly to provide the necessary basis for judging the feasibility of its general proposals.

The implementation of our recent school reforms has been the task mainly of the NBE, and of the County School Boards and the Local School Boards. On the basis of the bill and the Commission's report, the NBE has had to work out a precise plan for implementation. The size of this task varies, depending on how extensive the Commission's studies were. In most cases it includes drafting new school regulations, retraining teachers, and estimating equipment, school building, and other needs. The NBE coordinates the regional and local authorities in their work of drawing up the detailed transition plan.

A word here about the NBE which is obviously crucial to the success of any reform plan. Its governing board consists of a Director General, a Deputy Director General, and members representing various public interests, for example, the trade unions. It is divided into five departments, one of which is the planning department, the body working primarily on quantitative planning. There is also a department of teacher training and educational research and development, two instructional departments (general education and vocational education) and an administrative department, as well as other small divisions bureau. The staff of the NBE includes educational administrators (with different origins – former teachers, headmasters, educational research workers, ordinary civil servants), school consultants (subject specialists), planners (statisticians, economists, experts on school building, etc.).

It is reasonable to state that in the reforms leading to the new Swedish education system the initiative has to a large extent been provided by forces outside the system itself. The Royal Commissions, on which representatives of political, social, and labour market groups had a strong position, have set the guiding principles, general objectives. And to some extent they also translated these into planning goals. Furthermore they have made considerable contributions to the detailed implementation plans. However, the effectiveness of the external forces has depended on the fact that the commissions were supported by a large staff of experts to undertake research relevant to the task of the commission, and have had the co-operation of the permanent administration. Once the reforms have been accepted by the Government and Parliament, these bodies – the NBE and the Office of the University Chancellor – have readily undertaken the responsibility for implementation in close co-operation with the regional and local education authorities.

Permanent Planning and "Rolling Reform"

So far I have spoken of educational planning in connection with recent ad hoc reforms of our educational system. Nowadays, however, the permanent planning function is strongly emphasized. You will have noticed from the previous survey that the central regional and local boards have very important tasks in this field. In fact, the tasks of the Ministry are limited within the sphere of purely administrative activity. The Ministries primarily prepare the Government's proposals on economic and policy matters. Therefore, the Ministry of Education as a whole may be viewed as a planning body. Within it there is a special planning unit – the Planning and Budget Secretariat – which mostly fulfills a co-ordinating function. This Secretariat assists with over-all planning and resource allocation and co-ordinates the detailed budgetary work. Long-term planning is developed within the Secretariat, which is then responsible for contacts with other ministries and the central boards. Furthermore, the Secretariat assists initiating and co-ordinating the investigation of committees.

At the Ministry the specific planning and budgetary work for the school system and for higher education is undertaken by two larger planning units, one for each of the sectors.

Through a series of post-war ad hoc reforms our educational system has been radically altered. As far as *structure* is concerned, it is believed that reform has reached a final stage for a considerable time to come. Future changes in the education system will have to be worked out by other means than the massive governmental ad hoc commission. If we wish to keep the system continuously efficient and abreast with developments in the society and the economy we need a device for continuous or "rolling reform." The educational establishment must have a built-in mechanism for change. This was recognized when the Ministry of Education and the central boards recently were reorganized. The principal tasks of the NBE are now seen to be "development, planning, co-ordination, rationalization, and service." The responsibility for what may be called innovation in the school thus rests to a large extent with the NBE. A corresponding responsibility lies with the Office of the University Chancellor.

The planning of the development of the education system can roughly be divided into two parts, quantitative and qualitative. It should be noted that the border line is blurred: qualitative planning at times will have essential quantitative effects and *vice versa.*

Within the NBE there is a planning department responsible for quantitative planning – "quantitative" referring to number and types of schools, number of teachers, number of pupils, etc. This department collaborates closely with the Central Bureau of Statistics in order to obtain the necessary statistical data. Methods for this planning have been very much improved over the past five to ten years. New techniques, such as operation research, have to some extent been tested. It is expected that eventually considerable progress will be made by use of these methods.

Qualitative school planning (on content, program, organization of work, teaching methods, efficiency, motivation, adjustment) has not advanced at the same pace. In the three so-called instructional departments of the NBE, for general education, vocational education, and teacher training, there is continuous revision of the curricula. But until now this has not been done in the same systematic way as the quantitative planning. In general it may be said that the *methods* for qualitative planning are still very much in need of improvement. This problem is closely connected with the organization, initiation, and direction of educational research and development. Responsibility for the initiation and support of R&D work has been given to a research bureau within the NBE's department for teacher training.

Earlier, R&D was closely associated with the special Royal Commissions. Systematic and continuous R&D is a relatively new concept and as yet rather limited. For the last few years the NBE has been allocated increased grants for this work. It is considered that R&D must be pursued as clearly defined and carefully planned projects. In collaboration with various research institutes, the bureau of the NBE must initiate, plan, and organize these R&D projects. The projects are pursued primarily in three institutional forms: at the schools of education (teacher colleges) where special educational research institutions exist; at the educational, psychological, and other social science institutions of the universities; and in school settings as teacher-led development work. There is no distinct border-line between the types of projects pursued in different places, but at the university institutes the emphasis has largely been on basic research, while at the schools of education it is more immediately related to the school situation. Experimental activity within the school system itself is confined mainly to so-called function-testing experiments.

One important aspect of these R&D projects obviously is implementation – putting into practice the results of the work. The research bureau of the NBE has the important task of ensuring that the R&D activities become as production-oriented as possible. This can be achieved by various means, for instance by arranging that as early as possible the projects have close contact with suitable manufacturers of school equipment; that the projects mount in service training courses for teachers on the new methods and the forms of work to which they seem to be leading, etc.

R&D projects directed towards curriculum and instructional methods with such practical ambitions as I have indicated naturally require a considerable investment both of personnel and finance. They cannot, for instance, be carried out as one-man projects. As a rule each group must include research workers and experts on both content and methods. Also it is essential that teaching methods, the organization of instruction and equipment, be developed and tested in one-and-the-same project. For the knowledge gained to be made applicable as quickly and efficiently as possible to the daily work of the school presupposes, *inter alia*, that those responsible for teacher training and retraining are fully familiar with the development work. Against this background it is considered essential that a considerable part of the R&D activity take place at the schools of education.

It should also be mentioned that Sweden has found it necessary to have increased public commitment for the production of instructional materials. A Royal Committee is presently working out how best this may be arranged.

Conclusion

To talk of education planning in Sweden is to talk of our recent decade of fundamental reform of the educational system. The two cannot be separated. The techniques of quantitative research and planning have been used to show the feasibility of the proposed reforms and to plan their implementation. But there is obviously a marked difference between the way educational planning was performed during the period of the great reforms and the desired pattern of "rolling reform". The development work permanently going on within the reformed administrative bodies should make Royal Committees superfluous; at least this is our intention. Nevertheless, we will always need some ad hoc committees, even though their tasks and functions vary from time to time. There will be problems overlapping the competence of various bodies. Such problems would have to be tackled by an independent institution such as the ad hoc committee. Also there is a great value in giving external forces their chance to influence the development of the system through the committees. We have tried to transfer this function of the committee of public "voice" and public "watchdog" to the various administrative agencies by providing them with governing boards in which – at least in principle – laymen have a dominating influence; whether this will work out in reality is an open question. I would like to end by stating that the question of how to get a suitable balance between external and internal forces is one of the most important concerns of educational planning, and how it is to be achieved cannot be dissociated from the political and administrative traditions of the country and its system of education.

Educational Planning in the Federal Republic of Germany

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My report on educational planning in the Federal Republic of Germany will be a report of trial, error, and partial achievement. First, I will deal with the structural aspects of educational planning and policy in my country; secondly, with educational plans which have been elaborated thus far, and thirdly, with the lessons which in my opinion may be drawn from our experience – at least for my own country.

(1)

Educational planning in a centralized state where long-term economic plans exist obviously has wider possibilities than educational planning in a federal state without such economic planning. In the Federal Republic of Germany there is an Advisory Economic Council. This Council presents annual reports on the long-term prospect of economic development to the Federal Government, which submits them, together with the government's comments, to the Federal Parliament. But an overall, long-term economic plan does not exist in the Federal Republic.

The Federal Government has no competence whatsoever in matters of education. Primary, secondary, higher, and adult education are the responsibility of the eleven *Laender* (states or provinces). Three cities, Berlin, Bremen, and Hamburg, have *Laender* status. The oppulation of the *Laender* varies between 17 million in North Rhine-Westphalia and 0.8 million in Bremen. We have eleven ministries of education incorporated in eleven *Laender* governments which are responsible to eleven *Laender* parliaments. The *Laender* have their own financial resources because they can levy taxes. Furthermore, they receive 63 per cent of the revenue of income and corporation taxes. These percentages, determined by the constitution, can only be changed by federal law with the consent of the *Laender*. There also exists a complicated system of annual financial equalization between the Federation and the richer and the poorer *Laender*. Therefore the *Laender* are not only legally responsible for education, for all schools and universities, but also they can and have to pay for it without interference of the Federal Government.

Never throughout our history has there existed a federal or national ministry of education except during the twelve years of the Hitler dictatorship when centralization was enforced by a one-party system. For more than a century there have been different forms of collaboration among the *Laender* ministries of education – by regular meetings of senior officials, educators, and researchers from schools and universities, and by conventions in education matters requiring a common solution. The driving force behind this collaboration has been the need for mutual recognition of pupils', students', and teachers' examinations in the different *Laender*. So gradually a core of common standards and common curricula at the different levels of publicly supported institutions have been developed. This is decisive for the entire educational system, since privately financed institutions, as in most countries of continental Europe, are a small minority.

With growing industrialization and mobility and the need to expand and democratize the educational system, it became imperative to institutionalize this collaboration among the ministries of education to achieve a higher degree of harmony and a common development of the educational systems. This led in 1948 to the foundation of the Standing Conference of Ministers of Education and Cultural Affairs in the *Laender* of the Federal Republic of Germany – a rather lengthy title. The Conference meets in a plenary meeting of ministers about every third month. Since its first meeting more than 500 resolutions have been passed and published. There is no majority vote: all resolutions must be accepted by a unanimous decision. The legal essence and duration of these resolutions is still debated among lawyers; practically, they are simply recommendations to the ministries concerned. To become effective they must be transformed into legislation or regulation in each of the *Laender*. However, the *Laender* parliaments cannot be bound by resolution, so if a resolution is not made into law the minister brings the matter before the Conference for reconsideration.

The Conference has formed a number of standing committees, among them a committee for educational planning which first met in 1962. Each committee has eleven members, the senior officials who are the heads of the respective departments in the ministries. All committees also have, of course, numerous sub-committees. The main task of the committees is to work out the draft resolutions which are submitted to the plenary meetings of the ministers. They also provide mutual information and co-ordination on routine matters of administration.

By a convention among the *Laender* a Conference Secretariat was established, in Bonn, which now has some 100 officials and employees, mostly seconded by the *Laender* ministries. In 1966 its annual budget amounted to $700,000 (U.S.), contributed by the *Laender* according to a formula based mainly on the size of population. The Secretariat prepares and executes the committee and plenary work of the Conference without itself having any administrative functions in educational matters.

For other fields of policy – finance, economy, social affairs – there are similar conferences of *Laender* Ministers, but they do not have a permanent secretariat. The most important of these is the Conference of Prime Ministers of the eleven *Laender*, which meets at short intervals to co-ordinate *Laender* policies and discuss *Laender* interests with the Federal Government. The Conference of Prime Ministers is also very active – some think too active – in the field of education. Major educational decisions often have to be approved by the Prime Ministers' Conference and, before being discussed by this conference, have to be passed through the Conference of Finance Ministers, which comments on the proposals from the financial point of view.

The educational system in the *Laender* has never been as extended and as uniform as it is today. Nevertheless in the opinion of the public our Conference – I say this quite frankly – is regarded as a rather clumsy organization working too slowly and producing too many compromises. Therefore, the last decade has witnessed the creation of two permanent advisory councils: one concerned with primary and secondary education, the *Bildungsrat* (Education Council), and one with higher education, the *Wissenschaftsrat*. Based on conventions between the *Laender* Governments and the Federal Government, they are composed, in equal number, of well known educators or educational researchers and the eleven ministers of education, or deputy ministers, of the Federal Government. In the Education Council the Association of Communes is also represented. Certain federal ministries are represented in both councils; the Federal Ministry for the Promotion of Scientific Research (which deals mainly with nuclear energy, space research, and science outside the universities), the Federal Ministry of the Interior, the Federal Ministry of Economics, and the Federal Ministry of Labour and Social Affairs.

These two advisory councils have the task of elaborating reform proposals and long-term development plans. The Higher Education Council has been most successful in this respect and has gained a great reputation. Many of its proposals for the expansion and reform of the university system have been accepted and implemented. Without reluctance the Education Council started its work last year. It was preceded by an independent committee of educators which produced ten reports. These stimulated discussion but their practical impact on educational policy has been limited.

To sum up this brief description of the structural frame in which educational policy and planning are performed in my country, in my personal opinion there is a definite trend which gives more and more momentum to the work of the two councils. I think this is because they can base their recommendations on research data, or on the authority of researchers who are their members. Furthermore, a council does not have to deal with the day-to-day problems of administration. It can concentrate on essential problems and develop long-term plans, as compared with the Conference of Ministers, members of which are party politicians depending on the support of their parties and parliaments and bound to respect local and group interests. Also our two councils work on a national scale with the collaboration of the Federal Government. For these reasons public opinion is inclined to turn to the councils for a magic formula which will solve educational problems.

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Now we come to the educational planning performed thus far in my country. The first attempt was undertaken in 1956 when a survey of the financial needs of the next five years was undertaken by the Conference of Ministers. Each ministry of education filled out a questionnaire. However, the results were never published because at that time it seemed fantastic to ask for a 200 per cent increase; in fact, this doubling of educational expenditure took place not within five years but within four.

The next attempt was made in 1962. It was strongly influenced by the now famous OECD Conference on economic growth and investment in education held in Washington in 1961. Our committee on educational policy elaborated lengthy questionnaires on primary and secondary education, teacher training, higher education, the arts, and adult education. The questionnaires were completed by the ministries, and working groups co-ordinated and tabulated the answers. The questions were rather primitive. We asked: How many pupils/students, teachers, buildings, and finances do you have or need in 1961? How many respectively do you expect to have or need in 1967 and in 1970? In this connection the Conference decided on national high and medium targets for pupil-teacher ratios at the different school levels, the medium targets to be reached at least by 1970, and accepted university student-staff ratios just proposed at that time by the Higher Education Council. All financial forecasts were expressed at constant prices and salaries of 1961 because no agreement could be reached (particularly with the Finance Ministries) on the annual increase of prices and salaries to be expected. Thus, an immense amount of data was collected and summed into national data. We were allowed to publish only the national data because some ministers were afraid of unfavourable comparisons between the more and less progressive *Laender*. But when our publication appeared in 1963, most parliaments asked for the *Laender* data too, so the ministries had to publish them.

These forecasts, primitive as they were, turned out to be most effective. They helped to convince public opinion that education is not a static but a dynamic system and that from year to year it needs more teachers, more buildings, and more money because it has to care for more pupils and students who want a longer and better education. The attitude of the ministers too has been changed. They had the experience that parliaments will give them more money if they put the cards on the table, as we say, if they confess how needy the educational system really is compared with the growing demand for education, instead of pretending that everything is all for the best as politicians are inclined to do. Only one year after the publication of our forecasts we had divisions, sections, or committees for educational planning in each of the eleven ministries. They continued the work of the Conference on the forecasts, annually comparing the actual data, as they became known, with the forecasts. Some *Laender* carried the forecasts on to 1975. Thus the forecasts published by the Conference have become a basis of comparison for all the *Laender* forecasts.

Furthermore, all *Laender* started to elaborate sectorial development plans for primary schools, for specific secondary or vocational schools, etc. These activities so far have not been co-ordinated by the Committee of Educational Planning of the Conference or by the Conference itself. Nevertheless, a regular exchange of documents and drafts is maintained by this committee. Since 1963 the Committee has conducted special surveys covering the period from 1961 to 1970 and has published the results in reports. The first report was devoted to the revision of pupil forecasts. It was followed by reports on revising the forecasts of the university student population and the forecasts of teacher supply and demand. In these special surveys, in which all *Laender* collaborated, the Committee tried to develop more sophisticated methods and thereby to enrich the stock of data available for educational planning in each *Land*.

At present we have sectorial development plans for the different school types and for teacher training colleges in all *Laender*. The majority of these plans has been published by the individual ministries. As a rule, the development plans for higher education are left to the initiative of the Higher Education Council. These can best be elaborated on a national scale since students choose the university of their preference and one-third of them change their university at least once during their studies. This is characteristic of our university system.

In elaborating development plans for the different levels of non-compulsory education various approaches have been used. That applied in Baden-Wurttemberg, a *Land* of 8 million inhabitants, consisted in setting enrolment and output targets at the intermediate school level and the university entrance level of the secondary schools for five-year periods up to 1980, and in breaking these targets down into specific enrolment and output targets for each of the 72 urban and rural counties. The targets vary for each county. Within the planning period a steep rise is foreseen in the rural areas. The entire plan is to be revised at regular intervals. It serves as a basis for restructuring the school system according to general reform principles elaborated by the Ministry, and also for assessing the needs for teachers, buildings, and monetary resources within the five-year periods up to 1980. The Ministry is now working on a similar plan for vocational schools.

Another approach has been applied in North Rhine-Westphalia, a *Land* of 17 million inhabitants with both highly industrialized and backward rural areas. A survey has been conducted to ascertain the enrolment ratios at the different non-compulsory school levels in each of the 95 countries in 1964. From these ratios the average enrolment ratios of 1964 have been computed. The plan aims at raising by 1970 the enrolment ratios of backward counties to the average level of 1964 by special grants for school building and by general school reform measures. When this aim is reached in 1970, the second part of the plan, a general school development and reform plan for the whole *Land* with output targets up to 1980, will start to operate. This second part of the plan is now being worked out.

In North Rhine-Westphalia as in Baden-Wurttemberg one of the main difficulties proved to be the forecasting of internal migration from rural to urban districts and of the shifts in labour and population as a consequence of further industrial and technological development. Special agencies of the *Laender* Governments elaborate these forecasts which are continuously being revised. Without these, educational planning cannot be carried down to the county level, which is essential to successful implementation.

All these plans are based on forecasting the individual demand for education. This is the well known "places" approach: How many places will be demanded in the different school types in year X, and how many teachers, buildings, and finances will be required as a consequence? The difficulties of the places approach are well known. As we have practised it so far in the ministries and the Conference, we extrapolated passed enrolment trends and corrected these by the maximum provision of places we felt to be realistic, taking into account the teacher, building, and finance situation in each *Land*. To remedy this deficiency a statistical model is being developed by Professor von Weizsacker of Heidelberg University. This model aims at investigating the educational attitudes of the population which is broken down into 12 socio-economic groups. For all children of these groups the transition quotas from compulsory to the different types of non-compulsory secondary education, and then to higher education, will be observed in a sample procedure for a number of years, and computed into matrices. We hope that this model will help us to develop the places approach into a more reliable, research-oriented instrument of educational planning.

The places approach presents another deficiency. Its analysis is limited to the expansion of the educational system. It does not co-ordinate this with total public investment. This problem has brought about another attempt at educational planning which has been undertaken in Hesse, a *Land* of 5 million inhabitants, where for years the Social Democrats have been in the majority. In 1963, the Prime Minister's office in collaboration with all government departments elaborated a 10-year plan (1965-1974) for all public investment of the *Land* including grants to the communes, and submitted the plan to Parliament for approval. The investment plan covers all fields of policy – education, industry, agriculture, social affairs, and traffic. The 10-year plan is revised every third year. It is based on a forecast of economic development and, as a consequence, of available tax revenue and other public finances.

The total public investment anticipated for the 10-year period is divided into sectors: education will obtain 13 per cent, traffic 19 per cent, economic development policy 25 per cent, and social policy 43 per cent. The global plan contains sectorial plans. For example, the educational plan covers primary, secondary, and higher education and sets the targets to be reached by expansion and reform within two five-year periods. The Hesse plan, which is limited to long-term public investment, constitutes the frame for the Parliament's annual ministerial budgets. No other *Land* has followed the Hesse model, which is very similar to the French planning system.

What I have described so far could be called the first phase of educational planning in the Federal Republic. In the last two years new experiments in educational planning have been undertaken, because the planning models applied in the first phase were not fully satisfactory. In the first phase planning was a statistical exercise combined in a rather haphazard way with certain commonly discussed reforms like streaming, prolongation of compulsory education, observation period, etc. During this first phase there were separate sectorial development plans for the different levels of education. But there is an interdependence between all levels of the system from nursery school to the university, and there is moreover interaction between expansion and reform. Therefore, educational planning must cover the entire educational system, including post-secondary and higher education, and it must be quantitative as well as qualitative. Quantitative statistical planning not connected with research-based pedagogical reform, or qualitative pedagogical reform not based on sufficient statistical planning data are obsolete. It is necessary to develop what has been termed as concerted action in which statisticians, experienced educationalists, and independent research workers collaborate.

An example of such concerted action is the way in which the Education Council recently has organized its work. A Reform Committee for the entire educational system has been set up, with sub-committees for the different levels, and a Co-ordination Committee for the link between school and university reform in which the Education Council and the Higher Education Council are equally represented. This Reform Committee has commissioned some twenty research summaries to be carried out in university institutes to discover where we "stand" in educational research, and what can be regarded as research-proved experimentation and innovation. It has been decided that, in future, for every proposed school reform measure, a statistical estimate of cost projections should be elaborated. I am convinced that this procedure, if carried out as proposed, will help initiate a new phase of integrated educational planning.

Another recent development is the tentative application of the manpower approach. The Higher Education Council commissioned a research study on the demand for university graduates in the Federal Republic in the 20-year period between the census of 1961 and 1981. The study which has just been published was carried out in the Basel Institute for Applied Economic Research by Professor Riese. He used a revised Bombach-model and the technique of interviews with individual industrial firms to find out what the long-term demand will be in 46 industrial sectors, in all professions of the tertiary sector, and in the educational system. I cannot describe the very complicated methodology in detail, first, because being only an educational administrator, I do not fully understand these econometric models and, secondly, because the study was processed by computers: you just have to believe it or not. The result was baffling even for the author of the study. His computers told him that in 1981 the graduates of a 320,000 or 370,000 student population – according to the pupil-teacher ratio which we want to achieve – will suffice to cover the whole demand of industry, society, and of the educational system; whereas in 1966 we already had 310,000 students. So, according to this study, from the manpower point of view further expansion of the university system seems unnecessary. On the other hand, the study advises us to double the output of secondary education, and send all secondary graduates who are not academically brilliant enough to successfully complete professional training at the traditional universities to post-secondary colleges for further education. As you may imagine, the results of the study are the topic of heated controversy in my country.

One of the main deficiencies of the manpower approach was brought into prominence by this study. So far we seem to have no adequate methodology to forecast technological change and its effect on the qualification structure of the future labour force. To take an example: The study predicts that manpower in the chemical industry will rise by 169 per cent from 1961 to 1981, but university graduates in chemistry employed by the chemical industry will only rise by 108 per cent. Why is this so? Professor Riese's answer is that he could only extrapolate the 1951 to 1961 development and correct it by the econometric data of his model. There is no statistical or other evidence on the effects of future technological innovation. As long as this deficiency in the manpower approach remains, in my opinion this approach cannot be regarded as the main instrument for preparing decisions in educational policy. To come back again to our example: From the forecasts of our Committee on Educational Planning we calculate that in 1980 we shall have 229 per cent more graduates in chemistry if we manage to train all students qualified for university entrance who wish to study chemistry. What decisions should we take in the ministries of education? Chemical studies, as you know, need very expensive facilities. At the moment the view prevails that we should expand these facilities as much as resources permit regardless of the foreseeable demand of the chemical industry. We must leave it to the future graduates in chemistry to create new industries as they did in our country in the 19th century. Individual demand, in my opinion, should carry more weight than manpower demand, at least as long as this cannot be predicted with more reliability.

The application of the manpower approach in educational planning becomes even more difficult when it is extended to all levels of qualified manpower, including not only university graduates but graduates of technical colleges, vocational schools, etc. Such an attempt was made in another study – the last one I have to mention – published a few months ago by Dr. Widmaier of the Basel Research Institute. This study was commissioned by the Baden-Wurttemberg Ministry of Education, which wanted its targets for output up to 1980 to be checked by a manpower study. It produced different models of educational structure to comply with the foreseeable individual demand for places and rather accurate figures for long-term manpower demand according to broad qualification levels. It concluded that doubling the output of non-compulsory general and vocational education until 1980, as was planned by the Ministry, would come near but not be quite sufficient to cope with the manpower demand of an economy with a 5 per cent annual growth rate. For lack of statistical and other data, vital parts of the study could be worked out only in a sketchy way. The old and difficult problem of translating education into job-qualification, in view of growing skill substitution and unknown technological innovation, once again proved to be an almost insurmountable barrier. So this study, too, must be followed by further research work.

(3)
Finally, let me try to summarize our present position in educational planning, our achievements and weaknesses, and try to point out what lessons might be drawn from our experience.

We can plan for standardization of school facilities, of entry and graduation at different levels, of teacher training and teacher requirements, right across the Federal Republic. The mechanism by which we achieve this is the Conference of Ministers of Education. Its school committee, on which each *Land* is represented, works out such common standards and submits them to the plenary meetings of ministers for discussions. By unanimous vote of the ministers the proposal of the committee becomes a resolution of the Conference. There are at the moment more than 300 resolutions – the majority of our resolutions – dealing with such standardization in primary and secondary education and teacher training.

Secondly, we also have the mechanism for concluding agreements among the *Laender*. This is an old administrative tradition in my country. The first agreement on compulsory education was concluded as far back as 1876, and the first agreement on mutual recognition of school leaving certificates giving access to universities dates from 1874. After the last war agreements on the standardization of the school systems in all *Laender* were concluded in 1955 and in 1964. These were worked out by the school committee, endorsed by the Ministers Conference, passed by the Prime Ministers and finally transformed into school legislation by each *Laender* parliament. In both cases it was two years before this process was completed. The 1964 agreement laid down definitions of all school types, introduced new types of school which had only existed in a few *Laender* but had been accepted generally as a valuable innovation, facilitated the transition of pupils from one *Land* to another, stipulated for experimental schools the certificates which would be mutually recognized, etc.

This description might give the impression of overwhelming efficiency, but it would be quite wrong. The first weakness is that we have no power to enforce our resolutions and agreements. In the Secretariat we keep a record of the transformation of resolutions and agreements into school laws and regulations by each of the *Laender*. This record has never been discussed in a plenary meeting. It reveals that the great majority of resolutions and agreements became law in each *Land*, but only after a considerable time-lag, and that there are agreements which have never been transformed in each *Land*. Our resolutions and agreements are not binding on any *Laender* parliament. The last word rests and, I think, must rest with the voters who elect their Parliament. If not all our resolutions and agreements have been fully accepted by the parliaments, we are to blame – our work was not good enough or did not gain enough public support.

A second weakness is that our resolutions and agreements are often worded in a very diplomatic, not to say vague manner, because they are compromises between the progressive educational policy of some *Laender* and the conservative policy of others. This weakness is inherent in any federal system where different political parties may be in power in the different states. Here, again, we can only hope that finally the best solution will gain nation-wide support.

All this also applies in the narrower field of educational planning. The forecasts, assessments, and surveys which the Conference and its Committee on Educational Planning have elaborated for the entire territory of the Federal Republic are based on the educational system as it actually exists, with slight modification like the full introduction of the compulsory ninth school year. They are not national educational plans for reform and innovation as are those in Sweden. In-so-far as such plans exist they have been worked out by individual *Laender* and are implemented only in these *Laender*. The Higher Education Council has elaborated genuine reform plans for the university system. An Education Council has been established to work out a national plan for long-term reform and development of the school system – in other words, to step in where we have failed. Nobody at the moment can predict whether the Education Council will be able to accomplish this task. In my opinion, it has a good chance of success.

From our experience in educational planning in the Conference and the *Laender*, some lessons concerning practical solutions of important structural and methodological problems may be deduced.

If carried out by research institutes or by independent committees of educationalists without participation of the administration, educational planning in our country had no practical impact on educational policy. It remained a bookish exercise.

When carried out in a Ministry of Education by a planning division, educational planning has been most successful in *Laender* where the following conditions existed: The planning division had the full support of the Minister of Education and his representatives and had immediate access to them. It had contacts with the members of Parliament most interested in educational policy, but without getting itself involved in party politics. It conceived of its function as being a development planning unit for the whole of the educational system, including the universities and the institutions of adult education. It had the full support of the specialized departments of the ministry. It was able to commission research work and had at its own disposal funds for financing such research. The creation of committees to draw in experts from outside the Ministry has been most useful, provided there is a close connection between the committees and the Ministry, e.g., by having the head of the planning division automatically the rapporteur of such committees. Finally, the planning division must be responsible for the collection and evaluation of all statistical data within the Ministry and maintain a close collaboration with the statistical office of the government which is responsible also for educational statistics. These agencies have had to be expanded in personnel and reorganized to collect more individualized data than they did traditionally.

In our country some ministries of education have established efficient planning divisions, others have not. The collaboration and co-ordination within our Conference Planning Committee has suffered from this diversity, since in any team the slowest member sets the pace.

As for methodological problems I would summarize our experience in the following way: In my country the individual demand for places approach has been the methodology the administration itself can best apply. But this remains a poor instrument as long as there is insufficient individualized data on the educational attitudes of different groups in the population.

The manpower approach, which is complementary to the places approach, should be further developed by research work, especially studies on forecasting technological progress and its effects on the qualification structure of the labour force. However, until such forecasting is possible with a greater degree of reliability than at present, we are inclined to think that the demand for places approach should form the main basis for long-term educational policy.

Educational Planning in Ireland

William Hyland

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I would like to start by setting out some current objectives of the educational system in Ireland which involve educational planning. Then I shall discuss the general problem of the kinds of information needed for satisfactory educational planning, and finally describe (in some detail) developmental activities which are important in Ireland at the present time, which illustrate the general problems mentioned above.

The educational objectives which require planning in Ireland at this time are:
1. The raising of the school leaving age from 14 to 15+ (if pupils become 15 during the school year they must complete the grade. They cannot leave on their fifteenth birthday);
2. The provision of free education for secondary school day pupils. (There will continue to be a small group of students who may wish to attend schools where rather high fees are charged.) We also intend to provide free transport for secondary pupils to appropriate centres, whether or not they attend the free schools. In addition, free books and materials will be provided for approximately 25 per cent of the secondary pupils attending free schools.

In the light of these objectives we hope to stimulate co-operation between the traditional second-level schools (secondary grammar and vocational) so that a more comprehensive type of education for secondary pupils is developed.
3. The construction of nine regional technical colleges to provide, in different parts of the country, facilities for the education and training of technicians and technologists. These colleges will also be used by adults to upgrade both their general education and their specific qualifications.

It is evident that at this stage we require a good deal of research and planning.

I would like now to set out the general problem which I was asked to consider: "What information does the planner need to generate, to acquire from all sources, to use, and to disseminate in order to develop a satisfactory educational plan in the broad context of economic growth?" I am conscious that our experience to date in Ireland makes it more appropriate for us to raise questions than to answer them. However, perhaps there is something to be said for the idea that if you ask the right questions the answers will, in due course, be forthcoming, even if it takes ten or fifteen years. As a start, let me briefly run through the elements of an educational plan, at least according to the Irish experience.

First, there is the formulation of objectives in general terms. Since we are talking in the broad context of economic and social development, to a considerable extent these objectives will be specified in terms of the economic and social achievement of the community. This is particularly relevant for us in Ireland for two reasons: history has left us in economic terms somewhat behind those countries nearest to us geographically; and in the next decade or so we will most probably be joining these countries in the European Economic Community. Consequently our community is challenged as perhaps never before to achieve high economic and social goals. This is not to say, of course, that other goals should be ignored. The problem is to achieve our economic and social goals without major sacrifices of other more traditional objectives.

Second, there is the formulation of objectives in operational terms. This is a particularly difficult problem. The translation of the objectives into operational terms may involve such a change in emphasis that they seem to be rather a good distance away from the goals specified in the initial general terms. One way or other, such formulation will certainly involve some specification of targets in "manpower" terms, though we do not yet know the best method of doing this. I shall discuss this in detail later, but the question is whether the specification of objectives in manpower terms needs to involve the notion of occupational classification, whether an attempt should be made to go directly from economic achievement to some specification of manpower needs in educational terms. At the present time I think that most educational planning exercises involve a transition through occupational classification. There is reason to question the validity of this approach. However, an attempt to skip the stage of translating manpower needs into occupational terms requires information not generally available. This is one of the matters I will discuss briefly in the context of the regional technical colleges mentioned above.

Third, there is the formulation and quantification of the (hypothetical) implications of the second stage in terms of the output required from the educational system.

Fourth, there is a general evaluation of the relationship of output to input within the educational system.

Fifth, there is the formulation and quantification of the presumed input implications of the required outputs in each time phase. This involves investigation of technical constraints and exogeneous constraints derived in part from historical development.

Sixth, there is the formulation of strategies:
a) to generate the incremental resources necessary to provide the required inputs, and
b) to optimize the use of these resources.

Seventh, there is the phasing of plans, the articulation of these plans to annual budgets, and the specification of annual targets.

The plan may now be regarded as ready for initial acceptance, but if we look at the proposal as a whole, for the whole planning period, we must provide for actual implementation of the plan and feedback arrangements which will ensure that plans are changed in the light of implementation, experience, and changing circumstances. Implicit in all this activity is the research needed to generate the information for plan presentation and adaptation. Finally, there is the effective presentation of the plan to ensure credibility and viability.

In my view the three criteria of a satisfactory plan are credibility, effectiveness, and viability. Credibility has two aspects. It relates to the relationship between the target outputs specified in operational terms and the general objectives of the society sponsoring the plan. It also relates to the relationship of the target inputs to the target outputs. It is probably true to say that the latter aspect to a large extent will be taken on faith by the general public for whom the plan is ultimately devised. However, there may be a general view that the targets as defined in operational terms are quite inadequate to realize the objectives specified in general terms and consequently are irrelevant to the real problems of the society at that time. If this is so, the plan will be a non-starter from the beginning. The information which is most relevant in achieving some credibility for the plan primarily is research information – usually research that is not entirely completed. If it were entirely completed one could perhaps use it to define the operational targets in somewhat different terms. But it will be research whose results have a general relationship to the problem in question. If adequately disseminated, and if properly related to good statistical background data, it will help to make the plan generally credible.

Effectiveness deals primarily with the relationship, the magnitude and deployment of inputs and outputs. Research has been most significant in helping the planner to devise an effective scheme in this sense.
I would like to focus for a moment on a particular aspect of effectiveness, i.e., How are "manpower" targets to be related to educational output targets, and what information is relevant to the several ways of doing this? Let us assume that we have some targets for the different economic sectors: a rate of economic growth in the industrial sector; a rate in the non-industrial sectors related perhaps to the density of services to be provided in the target period. There seems to be three possibilities of transforming these specifications into educational output targets:

1. One can use within each sector a direct relationship of manpower specified in educational terms to the sector targets specified.
2. One can translate the sector targets into occupational terms and then translate these into educational terms using an occupation/education matrix applied to the total stock of occupations required in the target period. The use of this translation matrix would then show the total stock expressed in educational terms.
3. One can derive the required manpower inflows, specified in occupational terms, using retirement and transition relationships and translate this inflow into educational terms using an appropriate occupation/education matrix. Of course, this matrix used in relation to an inflow, would not be the same matrix as one would use in relation to the translation of the stock.

The most common approach appears to be the second. I feel that this approach may be questionable because of the high correlation which has been found to exist in all countries and in almost all occupations between age and education. Consequently, the educational level of those leaving the sector in the inter-target period will always be a good deal lower than the educational level of those who would come in, even in the absence of any educational plans. This tends to give a downward bias to estimates of the demand for qualified manpower. But this method has the attraction that the information it requires is traditionally much more readily available than information necessary for either of the alternative approaches. The use of the first method would necessitate information on the educational background of the manpower in each industry or sector and the changes in this over time. It would also be necessary to relate changes in these educational inputs to changes in the productivity of the industry or sector. The use of the third method requires educational information on those who entered particular occupations during previous periods and knowledge of trends in these coefficients. None of these data have been widely available in the past. For this reason the second method has been used largely by default. The problems of data should be reconsidered and information developed so that it would become feasible to attempt the alternative methods.

The concept of the viability of a plan has not thus far received as much attention as the concept of the effectiveness. I would regard "viability" as the initial and continuing political acceptability of the plan in varying circumstances. The continuing acceptability of the plan depends on:

a) the continuing credibility of the plan;
b) the continuing capacity of the plan to adapt to changing circumstances;
c) the continuing ability to offset any political loss which the plan may entail by repeated effective presentation of the link between the plan and its objectives;
d) the continuing awareness by decision-makers of this link, and
e) the capacity of decision-makers to transform traditional patterns of decision-making to accord with planning necessity. This means a fairly radical change in decision-making criteria and is a large demand to make on the official who has to survive in a democratic political context.

We use the phrase "planning is decision-making, new style" rather superficially. We need to think much more deeply of what this attractive but rather facile phrase involves. In particular we need to discover what information will help the decision-maker make this transition in behaviour patterns. This implies a great deal more research into (a) the general social situation – specifically the reaction of people to government interventions, and (b) links between the administrative apparatus and the decision situation. I regard this question of viability as crucial because it is reasonable to regard planning as an investment, and a characteristic of all investment is that one pays the costs before one gets the benefit. In this case the costs are not only financial. There are also political costs. For example, planning frequently involves a concentration of investment where formerly there would have been diffusion. This exacts some political cost. The time dimension of this question is also important. If the plan is of the medium-term variety, say a five-year plan, in a democracy most of the benefits will not be realized until after the next election. It is asking a great deal of a politician to pay a great deal of attention now to policies whose benefits can only become apparent much later. Another aspect, which in my view creates difficulties, is that most likely the political decision-maker during the inter-plan period will be under pressure from various special interests who are inconvenienced by the plan. These people are usually a great deal more articulate than the general consumers who are benefiting, or may at some future date benefit, from the plan.

The kinds of information which are relevant to such research would include:

1. Haphazard feedback based on unplanned face to face contacts.
2. Systematic but non-formal feedback based on planned face to face contacts: one normally thinks of political parties or field agents performing this function.
3. Information arising from the activities of pressure groups.
4. Regular statistics gathered as a byproduct of the administrative process.
5. Regular statistics specifically collected for the planning activity, which would not normally be a by-product of the administrative process.
6. Ad hoc surveys.
7. Research into educational, economic, and social situations and into the reactions of such situations to changed inputs.
8. Seminar activities, disseminating the results of research and other forms of information between different groups and generating interaction between these groups.
9. Information about other countries transmitted between the various groups. Information on other countries' activities could relate to objectives, structures, activities, and technical problems. International agencies such as UNESCO and the OECD have a sizeable part to play in making effective information about other countries available to national planners.

The chart on the following page is an attempt to identify the main elements between the complex of decision-making, administrative action, and planning activities. It is essential to distinguish and indicate the main information flows which are relevant to these problems. The main flows which I believe of importance are marked with an 'X'. They may relate to any of the types of information specified above and be relevant to the credibility, effectiveness, or viability of the educational plan. I have marked with a circle those flows which the planner must pay particular attention to. If he generates this information he will be in a position to disseminate it effectively. I have marked with a box flows which I think he needs to pay great attention to in terms of dissemination. I do not wish to stress this particular diagram, it is an initial hypothesis, and in its present form it is perhaps more relevant to my own country than to others. However, I feel that it can readily be generalized. It is, in any case, essential for the planner at the initial formulation of the plan to be generally aware of a broad background which is related to plan effectiveness and viability. It may help in building in some "fall-back" mechanisms if the economic climate changes rapidly. In addition, it highlights the need for very careful attention to the "marketing" of the plan – an effort has to be made to "sell" the plan to the community. The general purpose of this presentation and marketing effort is to transform the short-term political loss which may be consequent on plan implementation to a general political gain or at least to a neutral political situation.

My general thesis is that any plan must be looked at from three aspects – the benefits it is intended to confer; the financial costs involved and the political costs that are involved if it is presented naively. My suggestion is that sometimes additional financial costs must be incurred as an intrinsic part of the planning procedure in order to minimize the political costs which might otherwise be incurred. The practical problem is how the planner can combine with researchers and presentation specialists to achieve this during the planning period. It is also necessary to develop continuing feedback from implementors to social researchers, to devise strategies which generate the least resistance to change.

Now I would like to finish by referring to some specific problems which have arisen in Ireland in planning the regional technical colleges mentioned above. They illustrate some of these issues. First we had to consider the coverage, the scope of these colleges. In most countries colleges of this type are called colleges of further education. To some extent they overlap with existing schools and higher institutions. This invariably creates a certain amount of political tension. It may generate hostility on the part of the existing institutions to the new institutions. For example, many of our secondary schools, whether of the traditional grammar type or the vocational type, find it difficult to offer a wide spectrum of scientific and technical studies at the senior level. We hope that the regional technical colleges, which will be large institutions, can be used as centres of excellence for these studies. But you will appreciate that existing secondary schools may look with a somewhat jaundiced eye on the very favorable opportunities made available to the new institutions. They may very well ask whether the same amount of money distributed over existing schools would not pay off better than the investment concentrated in new institutions. This is the kind of problem I discussed above. Relevant to the success of this regional college plan is the question of their organization. Their regional type of organization cuts across existing educational administrations and unless great care is given to minimizing resulting friction serious problems could be created. The skill of the planner in these areas is as important as his technical expertise.

Matrix of Information Flows

	Ultimate decisionmakers (UDM)	UDM – Ministerial	Economic Evaluators	Sources of Finance	Administrators	Implementors	Experts – Economic	Experts – Educational	Producers – Institutions	Producers – Teachers	Political Evaluations	Organized Interests	Presentation Specialists	General Public	Researchers	Planners
To	A	B	C	D	E(1)	E(2)	F(1)	F(2)	G(1)	G(2)	H	I(1,2)	J	K	L	P
From																
P		⊗	X		⊗	⊗	X	X	⊗	⊗			⊗	⊗	X	
A																
B	☒		X	X												
C	☒	X		X											X	X
D	☒	X	X												X	
E(1)		☒													X	X
E(2)		X			☒				☒	☒					X	⊗
F(1)		X	☒		X			X	X	X	X	X	X	☒		X
F(2)		X			X		X		X	X	X	X	X	☒		X
G(1)		☒			☒	☒				☒	☒	☒	X	X		⊗
G(2)		☒			☒	☒			☒		☒	☒		X		⊗
H	☒	☒														
I	☒	☒			☒											⊗
J																⊗
K	☒	☒		☒	☒						☒	☒	☒			⊗
L		☒	X				X	X	X	X	X					X

I may say that I have been impressed by the very effective visual presentation you have developed in relation to your Colleges of Applied Arts and Technology. In Ireland we have a great deal to learn from you in such matters.

Coming to the technical planning problems which these colleges set us, initially we faced the question of defining manpower needs and the extent to which the colleges might meet these needs as the needs change. One of the difficulties which we faced was the unsatisfactory occupational classification of technicians. In many cases these persons can best be specified by the kind of process he/she is capable of performing. In other cases they can best be specified by the kind of industry in which they will eventually function. In some cases, it is necessary to specify both the industry and the process on function. This makes for a great deal of detail in the specification of the occupations. However, manpower forecasts expressed in very specific terms are more likely to be subject to large margins of error than targets specified in wider terms. In addition, if occupations are specified in very precise terms, and if education is geared in the same specific way, you may be simply building-in obsolescence, at great cost to the individual concerned as well as to society.

However, when some list of occupations has been prepared and a set of numbers has been accepted as specification of output for the target period, the next task is to translate each of these occupational terms into an educational profile. This profile traditionally is expressed in an operational sense as a list of subjects which are relevant to each course, with a time allocation for each subject over the full period of the course. The content or curriculum of the individual subjects has to be specified. At any given time a traditional pattern relating to courses, both the subjects and their content, is accepted. An important question is whether these patterns can be revised in any rational way and what information will help us modify them systematically. This problem has been made more complex by the realization that education and training are best seen as the basis for continuous learning over a lifetime. This places stress heavily on a more general approach to subjects than has traditionally been the case. On the other hand, in relation to technicians particularly, one must be sure that short-term needs are met, that a person finishing a course is effective and valuable on the labour market. We have not found it easy to achieve a balance between these two. It is of little use to discuss this question in the abstract. One starts from particular traditions. I feel the most effective planning method is to ask how this tradition can systematically be modified, element by element. Helpful information, in my experience, includes the following:

1. An investigation of the experience of people of this type who have been in the labour force for less than ten years. It should be possible to ascertain a good deal about the subjects, the kinds of curriculum elements which have been found useful for the occupational mobility they have already experienced or envisage in the future.
2. Investigation of changes in technology as they have effected different occupations and industries. Studies of the rate of diffusion of technological change and the demands these make on technical manpower.
3. International organizations contribute a great deal by making available information on practices in different countries. Such studies are beyond the resources of planners in the smaller countries. In my view, to be effective such studies should be organized on an international basis. The international organizations might thus play a large part relevant to the economic growth of the less developed countries.

In Ireland we have just begun to develop educational planning, and to give serious thought to the relationships between educational planners and educational and economic research groups. This is an area where we have a great deal to learn from our Canadian friends. I hope that it will be possible to exchange information on our efforts, on our successes, and indeed on our failures.

Manpower Forecasting and the Use of Such Forecasts by Educational Planners

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A good question with which to begin this discussion is: "Why bother to plan education at all? Haven't we done well enough without it all these centuries?"

In truth, concern about planning education to meet society's need for specially trained workers is a relatively recent phenomenon. It has its origin in three broad developments: First, the accelerating pace of technological and social change in highly developed as well as in developing economies, which gives rise to rapid changes in requirements for certain occupational skills. Second, the growing complexity of technology and of industry, which increase the degree of occupational specialization and require more extensive special training or education. Third, the increasing assumption of responsibility for vocationally oriented education and training by centralized agencies of government, which, more than the individual employer, are able to see the training problem as a whole and are under some obligation to allocate public funds wisely.

These developments have set the stage for the interest in manpower needs as a basis for educational planning. Lack of educational planning based on manpower needs in the past has resulted in shortages in some occupations and overtraining in some of the traditional fields of vocational education. These defects were less devastating in the past than they are likely to be in the future because of the slower pace of technological change, because of the flexibility of workers – especially those with broadly-based general education which enabled them to adapt to new work demands – and because of the flexibility of industry in rearranging work to use less highly trained workers. Examples of such adaptations may be found throughout the occupational spectrum. Individual flexibility may be seen in the significant proportion of the members of nearly every occupation who have been able to enter a field without formal training in it. Most striking is the considerable degree of mobility among scientific fields which we think of as requiring the highest degree of specialized training.[1] The flexibility of management may be seen in many situations of occupational shortage: the use of scarce skilled machinists to set up the work in machine shops so that it can be done by semi-skilled machine tool operators; the use of technicians to support, and partially to supplant, fully trained engineers or scientists; the use of hospital attendants or practical nurses to take over some of the routine tasks of professional nurses. Even in those fields in which entrance is rigidly controlled by licensing laws, such as the medical or dental professions, the use of more readily trained assistants – nurses, dental hygienists, laboratory technicians – has stretched the limited supply enabling the professional practitioner to serve more clients.

This flexibility in adapting manpower supply to demand has enabled nations to weather what otherwise might have been severe manpower crises. But this necessary adaptation is not without its cost. The economic costs are obvious; using less skilled workers reduces productivity and slows economic growth; paying high wages to scarce skilled workers raises the cost of living – for example, the cost of medical care, one of the fastest rising components of the Consumer Price Index in the United States, may be traced in part to a shortage of medical personnel; and, on the other hand, the individual loses income if he lacks the training needed for skilled work. Less obvious are the costs in the quality of life in a society dependent on inadequately trained nurses or hurried and harried physicians; or in which the plumbing or the electrical appliances are out of commission a long time before a repairman can get to them; or in which poorly trained teachers struggle with large classes.

It is an attempt to reduce this dependence on improvisation and adaptability that society has tried to plan education and training to meet changing manpower needs. This arises particularly in developing countries in which a rapid and revolutionary change in manpower requirements is coupled with extreme shortages of resources for training, intensifying the economic and social value of planning the educational service.

In this paper I will discuss, first, some of the characteristics of manpower projections required for their use in educational planning; second, the state of the art of manpower projection; and third, problems in using the projections in educational planning.

The needs of the planning process determine some of the needed characteristics of the manpower projections. They determine, for example, how far into the future the projections should be made and with what level of occupational and geographical specificity.

Planning and therefore manpower requirements projecting is needed as far into the future as it takes to put the plans into effect: i.e., to build and staff the facilities and put students through the program. For medical or scientific fields this may mean a minimum of about 10 years; for many other professional occupations, half as much time; for the less skilled occupations, only a few months to a year – although even here the need is to look as far ahead as possible to anticipate manpower needs through the lifetime of the worker.

Planning for education may go on at several levels of occupational specificity. It may concern itself with determining the number of students that should be provided for at each level of the educational system: elementary, secondary, or higher education. Going one step beyond this, planning may deal with the needs for different types of education within these levels: vocational or academic at the secondary level; liberal arts or technical and professional at the university level. At the extreme of specificity it may deal with the numbers of students who should receive training for individual occupations or even specialties within occupations—high-energy physics or ophthalmology, for example.

The level of specificity is determined by several factors. One is the need for decisions on investment in one or another kind of training facility where facilities are not adaptable (buildings and classrooms being more adaptable to a variety of uses than are laboratories). Similarly teachers, a significant component of capital investment that cannot be created readily and must therefore be planned for, are adaptable only within limits. This implies that specific long-term planning is needed only for a limited spectrum of occupations, while for the great bulk of occupations in a modern industrial society –

which can be entered after only a general education and for which the specific training is relatively brief and is given on the job – neither specific educational planning nor specific manpower requirements projections are necessary. The educational planning for general education is broad.

A second factor that may determine the specificity of planning is the specificity with which the authorities are able to make long term projections of manpower needs. If the economy's growth is unpredictable or the data on which to base projections of specific occupational requirements do not exist, then planners will have to fall back on general projections and general planning.

This leads to consideration of the state of the art of manpower projections. Can we really see into the future by as much as 5 to 15 years with enough assurance to plan? Can we anticipate the technological innovations which, as we look backwards, have been so revolutionary in their effects on employment? How can we allow for unforeseeable political and natural events – wars, revolutions, droughts, and earthquakes?

This is a difficult question to answer with assurance: in few countries have systematic attempts been made for a long enough period of time to permit an empirical test of accuracy of results. (A few empirical evaluations of projections after the fact are referred to below). In any event, even empirical experience cannot clearly validate a projection of requirements. First, the projections are based on assumptions that may not be borne out. Second, the actual number of workers employed in the target year may be less than the number projected, not because the projection was wrong, but because the supply was not created to meet requirements, giving rise to a shortage which cannot be precisely measured. A projection that comes out *lower* than actual employment is more clearly wrong.

The assumptions that must be made for calculating any long term economic projections have largely to do with the broad continuity of economic and social patterns, ruling out catastrophic events such as wars. This is not to say necessarily that educational planning should not provide for catastrophe; this is one of the types of alternative assumptions that can be inserted into the projection/estimating mechanism once it is developed. But for general, long-range projection work the timing and dimensions of catastrophic changes cannot be anticipated, and catastrophes are left out of an initial set of projections.

Two general approaches to projecting manpower requirements have been used in various countries. One is to conduct a poll of employers asking for their judgments; the other is to analyze the factors affecting the demand for the occupation – usually changes in the demand for the product or the service supplied – and to project these into the future by the usual methods of economic analysis.

The former method has met with indifferent results and is now generally discredited.[2] It depends on the ability of the employers to make long-term projections of their own activities, which only a few employers do in careful systematic fashion. Also, it makes no allowance for the appearance of new firms which, over a period of 5 to 10 years, may become significant employers. Finally, it cannot be related to any systematic approach to underlying economic and social factors.

The analytical approach may be relatively simple, especially when used for a single occupation, or quite complex. An example of the first is a method typically followed in projecting the demand for teachers, based on projections of the school-age population, of the changing proportion of population at each age enrolled in school, and changes in pupil-teacher ratios.

More complex methods are needed for occupations employed in industry, particularly those employed in many different industries, such as engineers, stenographers, or machinists. Typically, such projections follow a series of steps:

1. A general projection of the growth of the economy for the next 10 to 15 years, based on the growth of population and labor resources, and leading to a projection of aggregate demand or gross national product, under the assumptions of continuity in economic and social patterns.
2. Projection of the demand for each product or service associated with this GNP, and with related levels of consumer income, government expenditures, and capital investment.
3. From this it is possible to project a production or activity level in each sector of industry, and, with allowance for productivity changes, the total employment in each industry required for this level of production.
4. The present occupational composition of the industry, adjusted for changes in technology and applied to the projected employment, can be used to project its occupational requirements.
5. The resulting estimates of needs for each occupation, summarized for all industries, provide an estimate of the economy's total requirements for each occupation in the target year.
6. Subtracting from this the present employment in each occupation, we compute the net change in manpower requirements from the present time to the target year.
7. To this net change we must add an estimate of the number of workers withdrawing from the occupation—deaths, retirements, and shifts to other occupations—to come up with an estimate of the number of new workers who must be trained to meet future needs. The methods so briefly sketched here have been more completely discussed in a number of publications.[3]

Both the simpler methods and the more complex systems approach described above can be used to check against each other.

As noted above, evaluations of the accuracy of long term projections for occupations and industries are not easy to find because this kind of work has not been systematically done long enough in most countries to provide a test. A review of projections made in the United States in the late 1940's in the light of changes in occupational employment from 1950 to 1960,[4] shows that methods similar to these followed nearly two decades ago gave fairly good results in anticipating the decline in employment which occurs in certain occupations despite the general growth in the economy, and in anticipating the general magnitude of employment growth in other occupations and industries. The very rapid growth of scientific, technical, and white-collar occupations, however, was not fully anticipated in these early attempts.

Since that time both the techniques of projection and the basic data needed have been substantially improved. National income and product accounts series have been developed for most major countries. Studies of the process of economic development have been made in many countries, often to aid in development planning. The techniques of construction and testing of econometric models, involving simultaneous solutions of systems of equations, have advanced considerably in the past twenty years. Input-output models of the national economy have been constructed for many countries to compute interrelationships in economic activity among industries. Studies of expenditure patterns and consumer behavior at different income levels have been made. Studies of the patterns of introduction of technological changes have been completed. Tables of working life have been elaborated to estimate the losses to occupations resulting from deaths and retirements. Studies of occupational mobility shed light on shifts among occupations. A beginning has been made in the systematic study of the occupational composition of industries. Much research has been conducted on regional economics and regional projection methods. Finally, the accumulation of analytical experience has itself helped in improving methods of projections.

Much additional research is needed. Data on such subjects as occupational mobility, the way in which the occupational composition of each industry changes, the international movement of skilled workers, the interchangeability of occupations in industry, and the relationship of wage levels to occupational choice need to be developed. But it is clear that the arsenal of techniques is already so much advanced that better projections ought to be more feasible today than two decades ago.

The greatest problem in making projections is to take proper account of technological innovation. No one has yet found a way to anticipate the findings of science or to foresee inventions that may be made. However, experience shows that technology usually diffuses slowly throughout the economy. Even though the rate of introduction of technological change into the economy seems to be accelerating, it still takes years, and it can be followed by alert researchers.[5] Thus the numerical control of metalworking machinery was first presaged by articles published in the professional journals of computer science in the United States. This development was watched closely, and each attempt to introduce it was evaluated for its impact on manpower needs. Far from ignoring technological innovation, the art is to properly discount the optimism of proponents of each new invention and to evaluate soberly the prospects for its introduction.

The essential point is that projections *are* being made in specific occupational and industrial detail looking 10 to 15 years into the future[6] and we have some reason to believe that they are of adequate accuracy for educational planning purposes.

Having concluded that manpower needs can be projected with reasonable, though far from complete, accuracy, what can we say about the value of the effort? I believe it is worthwhile. We have to make decisions about education that require some assumptions about the future. Buildings have to be built, laboratories and equipment purchased, teachers trained. In the absence of systematic projections we have nothing to go on but past patterns of education, and in a rapidly changing society this is bound to be the wrong way to go about it. Projections that have even a modest degree of accuracy are better than none at all. The case for considering manpower needs projections in educational planning has to be made with some diffidence, but the case against their use is clearly indefensible. Some projection, implicit or explicit, lies at the base of any long term plan.

The need for careful planning is more acute when resources are limited. Education, like any other form of capital investment, takes resources away from current consumption for the future benefit. It is notable that less wealthy countries take planning more seriously than richer ones.

There are a variety of approaches to educational planning, depending on one's social philosophy. To oversimplify, I will suggest a few typical viewpoints along a continuum. At one extreme are those who view education in its broadest function as humanistic in purpose and designed to prepare youth for the full life. This view would develop plans for education in terms of the demand generated by the growth of population and the social trends affecting the desire of various groups of the population for schooling.

This viewpoint sometimes is nurtured by suspicion of the heavy hand of the State manipulating the life of individuals to meet economic needs, as well as a distrust of our ability to anticipate these needs. It is willing to leave the articulation of economic needs and education to individual adaptation, based on a broad general educational preparation.

A second point of view closely related to this one is that, while education must be articulated with the manpower needs of society, this should be done indirectly through the market mechanism – i.e., let the decisions of young people be determined by the relative attractiveness of various occupations (in terms of wages and working conditions) and their own preferences for different types of work. The function of planning is to anticipate these decisions and provide students with the courses or training they want. Proponents of this viewpoint would also provide students with information on employment opportunities and with vocational guidance services to help them choose. This approach preserves the freedom of individual choice and depends on the play of the competitive market to determine the allocation of individuals to occupations.

At the extreme of the continuum is the viewpoint that society cannot afford either to provide expensive education in excess of its needs or to fall far short of meeting the needs, and that the number of places for students in each type of course should be determined by manpower requirements projections (with allowance for the probable projection errors, dropout rates, and other aspects of wastage). Selection of individuals for entrance, on the basis of grades and examinations would, in effect, be society's allocation mechanism.

Having oversimplified the varieties of approaches we should note several things about them.

First, every country's educational system is eclectic in combining more than one of these approaches. In the United States, for example, the expansion of publicly supported higher education by several States has been justified largely on the growth of population and expectations of a rising demand for college education, with manpower needs either taken on faith or rather generally projected as additional justification to prod the hands holding the purse strings.[7] At the other extreme medical education (one of the most expensive of all forms of education) has been conducted on the basis of limited expansion of enrollments, usually in belated response to estimates of manpower needs, and with rigid selection of students. The greater permissiveness tends to be found where a large investment in highly specific educational facilities is not required – and this gets back to our earlier point about the interchangeability of classrooms but the rigidity of laboratories.

Second, whether the second or third approach is followed, projections of manpower needs are required, for vocational guidance in the first case, and to determine the facilities needed in the second case. Thus in the United States, where interest in quantifying manpower needs for educational planning is relatively new, the systematic appraisal of future employment opportunities for vocational guidance has been going on for more than twenty years in the Bureau of Labor Statistics, and the *Occupational Outlook Handbook* embodying this information is one of the most widely used government publications.

Third, while we hesitate, in an open society, to put social constraints on the individual's freedom of choice, the students themselves often seek guidance, and, unsure of their own ability to make sound decisions, many students consciously or unconsciously ask for direction. It is the common experience of vocational counselors that they have to carefully *avoid* making the decisions for some clients.

The eclecticism in practice referred to above is only partially a result of differences in point of view; it also arises because of the practical realities of the educational structure and of economic life. A nation's ability to relate the number of students trained for each occupation to its manpower needs depends on the manner in which the educational system is organized. Highly centralized national control of educational institutions makes it possible to make and implement decisions as to the number of places to be provided in each course or type of institution. But what can be done in a country where privately controlled schools make their own decisions as to expansion of facilities and enrollments, or where State or local educational systems have a jealously guarded autonomy?

Even in these circumstances there is an area of responsibility for the national authorities. At a minimum they are called on to develop projections of manpower needs, and data on the output of the various institutions, and to compare the two so as to evaluate the extent to which the decentralized system is meeting the needs. By publicizing its findings, the national authority can call attention to emerging problems. By furnishing leadership, encouragement, and exhortation, it can hope to persuade private and local officials to adjust their programs in the right direction. Precision in the response of a pluralistic system such as this to meeting numerically quantified needs is too much to expect, but we can at least hope for a tropistic movement in the right direction, once the light is shown.

Part of the problem is one of how to organize the decision-making activities of independent institutions to achieve a common end. By what process, for example, does the administration of a private or State university decide what *it* should do about a study that has been made showing that the nation must expand its annual output of engineers by, say, 30 per cent? Short of each institution expanding its enrollments and facilities by the same percentage, which is highly unlikely, by what mechanism can an orderly and appropriate adjustment be made? Mechanisms for mutual consultation may prove helpful, under either government or private auspices. Organizations such as professional or educational societies can give leadership, providing a forum for discussion and the reporting of plans or decisions.

Going beyond the establishment of numerical goals by means of manpower requirements projections, leadership and exhortations, national authorities have a few other devices they can use. Provision of financial aid to students or institutions, for example. The United States has followed this line in a variety of ways: the National Defense Education Act to promote training in such subjects as modern languages and vocational guidance; fellowships in science administered through the National Science Foundation; grants and loans for the expansion of medical education; fellowships in psychology financed by the Veterans Administration; and many others. These forms of intervention are relatively new, and it is still too early to tell how well they work. As manpower requirements projections are more regularly calculated over the next few years and can be compared with data on the numbers of graduates in each field, such evaluations will be possible.

So far we have discussed only the nationwide planning of education in relation to manpower needs. Local planning introduces another dimension of difficulty. Insofar as a nation's manpower supply and demand are self-contained (i.e., the immigration and emigration of trained workers is either negligible or capable of being taken account of in the projections) a national system of projections can be useful in national educational and training efforts. But *local* educational planning is complicated by internal migration. This migration can be considerable. In the United States for example, two out of five 18 year olds in 1955 had moved to a different community five years later, and half of these movers had gone to a different State. Looking at the data another way, nearly half the men in their 40's were living in a community other than the one in which they attended secondary school. Thus the school system of any community produces workers for other communities. Migration is more prevalent among professional workers (who typically make their first break with home ties when they go away to college, and then compete for jobs in a nationwide market) but it occurs all along the occupational spectrum.

What approach to educational planning for manpower needs should a State or a city follow? At one extreme it may estimate its own needs and train for them (at least in the occupations below the professional level), counting on in-migration of trained workers to match out-migration. Followed rigorously, this would be a disservice to the students, especially in rural areas where there is a narrow spectrum of occupational opportunities and substantial out-migration.

At the other extreme all localities might set up their curricular offerings in a common pattern of national manpower requirements, taking the view that by doing their share of the total job (in terms of their share of the total youth population)[7] they can make their best contribution. This is unrealistic, since local industry may rightly ask that its manpower needs get priority from the school system supported by its taxes.

This dilemma is not hypothetical: the Vocational Educational Act of 1962 specifies that each State must have a plan based in part on an appraisal of its manpower needs.

The best answer lies somewhere between the two extremes. However, there is no easy way to formulate a logical and systematic program for a particular area. One possibility is to allocate a part of the training proportionately to the various occupations represented in local manpower needs, and the remainder (depending on the community's out-migration experience) to those occupations represented in the nation's needs.

These complexities lead local educational authorities to place greater reliance on the desires of the students, assisted in their decisions by vocational guidance. At least in theory, the boy who sees his career in a local machine shop will take appropriate vocational courses in the local schools; the one who wants to live elsewhere, or has his heart set on an occupation not found in that community, will take other training or even go elsewhere to get the training he wants.

Consistent with this point of view is the thesis that vocationally-oriented education below the college level should be set up on as broad a basis as possible to give the individual maximum flexibility, and the more specific training should be concentrated in the localities where the jobs are available, to adults as well as secondary school students. At the college level greater mobility can be assumed.

In summary, since we have the ability to project manpower needs by occupation for 10 to 15 years with reasonable accuracy for most occupations, we need no longer rely entirely on the adaptability of the individual and of the management to ensure that manpower needs of society will be met. However, the implementation of educational planning based on such information becomes difficult, especially at a local level. This is the greatest challenge to educational planning. We will still need to foster the greatest possible flexibility through breadth in basic education, by reducing to the greatest extent the barriers to the free movement of persons among jobs, and by providing for retraining and adult education. Flexibility will allow for errors in projections; for catastrophic changes which, by definition, cannot be handled by available projection techniques, for the failure of society and individuals to act fully on the basis of projections, as well as for the inability of local educational authorities to plan their curricular offerings in line with manpower needs. We can, however, by systematic and continuous projection research, plan education so that we reduce, though we cannot eliminate, dependence on flexibility, and thus increase productivity, individual income, the quality of work done, and the rate of economic growth.

References

1. Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Mobility of Scientists*, Bulletin No. 1121, Washington, Government Printing Office, February 1953.

2. BRUNO STEIN AND CHO-KIN-LEUNG, *Local Manpower Data Programs:* An Analysis, Report prepared under contract with the Office of Manpower Policy, Evaluation, and Research, Manpower Administration, U.S. Department of Labor, 1967 (unpublished)

3. Symposium on Manpower Requirements and Supply Projections, *Industrial Relations*, Institute of Industrial Relations, University of California, Berkeley, May 1966

4. *Proceedings of 21st Interstate Conference on Labor Statistics*, U.S. Department of Labor, Bureau of Labor Statistics, San Francisco, Calif., June 25-28, 1963, HAROLD GOLDSTEIN, An Evaluation of Experience in Long-Term Projections of Employment by Occupation

5. FRANK LYNN, An Investigation of the Rate of Development and Diffusion of Technology in our Modern Industrial Society, In The Employment Impact of Technological Change, Appendix Volume II of *Technology and the American Economy* – Report of the National Commission on Technology, Automation, and Economic Progress, Washington, Government Printing Office, February 1966

6. Bureau of Labor Statistics, U.S. Department of Labor, America's Industrial and Occupational Manpower Requirements, 1964-75, in The Outlook for Technological Change and Employment, Appendix Volume I of *Technology and the American Economy* Report of the National Commission on Technology, Automation, and Economic Progress, Washington, Government Printing Office, February 1966

   Bureau of Labor Statistics, U.S. Department of Labor, Projections 1970: *Interindustry Relationships, Potential Demand, Employment*, Bulletin No. 1536, Washington, Government Printing Office, December 1966

   Bureau of Labor Statistics, U.S. Department of Labor, *Technician Manpower: Requirements, Resources, and Training Needs*, Bulletin No. 1512, Washington, Government Printing Office, June 1966

   ALLAN F. SALT, Estimated Need for Skilled Workers, 1965-75, *Monthly Labor Review*, April 1966

7. JOHN K. FOLGER, *Scientific Manpower Planning in the United States*, (to be published in World Yearbook of Education, 1967)

Determinants and Projections of Educational Expenditures

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Introduction

The growing importance accorded education as a source of national economic growth and as a requisite for personal participation in an increasingly complex modern society underscores the need for understanding the determinants of past educational expenditures and the bases of projected or planned educational expenditures of the future. This paper provides a broad overview of the major techniques used to identify factors associated with educational outlays and the chief methods of projecting them. It is hoped that such a review will indicate unresolved problems as well as summarize achievements to date.

Determinants of Educational Expenditures

Some Conceptual Issues in the Positive Theory of Educational Spending

Empirical studies of the determinants of educational expenditures range from time-series analyses of educational outlays in a single country to cross-section studies of expenditures in different countries, or of different governmental units in the same country when, as in the United States, federal systems make possible such analyses. The dependent variable generally used is expenditures per capita chosen in preference to total expenditure in order to eliminate variations due to differences in population size. The selection of independent variables for cross-section studies depends mainly upon whether the analysis is of governmental units in a single country or is an international study. In the former, there is a great deal of comparable data making possible complex multi-variate analysis, whereas for the latter, comparable data on expenditures, population, and income are generally all that can be obtained. In the vast majority of countries a uniform national educational policy precludes regional cross-section investigation, and limitations of degrees of freedom imposed by paucity of the number of observations and prevalence of unusual conditions, such as wartime, severely hamper the number of independent variables which can jointly be considered in time-series analysis, even when comparable historical data are available.

The starting and often also the concluding point for a great many studies is the relationship between educational spending and a measure of income. Choice of income as the dominant independent variable appears to have two distinct rationalizations. Consumption expenditures for all but inferior goods rise with increases in income, and education surely is not an inferior good. The second rationale derives from the classic conclusion of Adolph Wagner, "that in the course of economic progress governmental budgets increase more than private business activities." Thus, education as one of the major items of government expenditure should be expected to increase at a more rapid rate than national income. If one interprets the items in government budgets as providing largely final consumption benefits, Wagner's conclusion is merely an assertion about the income elasticity of public expenditures. It seems more appropriate, however, to interpret his comment as applying to government services as intermediate products in the production of private goods. This view is consistent with the explanation of the close association of education and income given by Friedrich Edding in his extensive international comparison, that

> *as the requirements of an industrial society can be assumed to be more or less uniform in countries of a similar development stage, these common aims may be expected to determine largely the planning goals. The ways leading toward these may vary, but the total of all efforts taken in the sphere of education remains in remarkably steady relationship to national product.*[1]

It is, of course, quite possible that as levels of national income rise, and additional expenditures for education take place, some serve to provide increased consumption benefits, others create the additional human capacities necessary to maintain or augment the level of income, and some may contribute to both at the same time. However, expectations that there should exist a close to unique relationship between aggregate income and educational spending cannot be maintained once it is recognized that (1) the demand for education is derived partly from returns to education as an investment in human capital in addition to its final consumption benefits, and that variations in this return will not necessarily coincide with differences in current levels of income; (2) the extent and nature of arrangements regarding public provision and finance of education vary not only from country to country but often among jurisdictions within countries, and (3) the real costs of providing educational services among countries and over time will also vary depending on methods of educational technology employed and the costs of inputs.

These considerations lead to the conclusion that in a systematic investigation a great number of factors other than income are necessary to account for differences in total, per capita, or per pupil educational expenditures, whether across countries, governmental units, or time periods. An extremely interesting and illuminating depiction of the interrelation among factors that account for levels of public expenditure is presented by Barry Siegal.[2] He argues that a positive theory which deals with a particular public expenditure not only must recognize such determinants of demand as current income, population size, preferences, expected returns, and available private alternatives and their costs, but also the dual determinants of supply – the production function and the prices of inputs. Taken together, the supply and demand for a public service determine the demand for finance; tax structures and political considerations, in turn, are primary determinants of the supply of finance. It is, therefore, possible for the supply of finance to be insufficient to meet the demand and thus constitute the effective constraint on spending.

International Comparisons

At first glance the major cross-national studies show such a strong relationship between income and public educational expenditures that other factors appear to be insignificant.[3] Friedrich Edding's analys of eighteen countries yields correlation coefficients between per capita income and per capita education expenditures of .992, .984 and .949 for the years 1954, 1950, and 1938.[4] Blot and Debeauvais perform a similar analysis for 95 developed and under-developed countries, and is find a correlation coefficient of .933 for data from recent but unspecified years.[5] Conversion of these correlation coefficients to coefficients of multiple determination, by squaring them, reveals that the highest explains about 98 percent of total variance and the lowest about 83 percent. Explanation of so large a portion of variance by a single variable is indeed indication of an extremely close relation. But the statistical properties of correlation analysis, when applied to as wide a range of values of a dependent variable as that of expenditures per capita among the highly disparate nations of the world, has a great deal to do with the large correlation coefficients obtained. This interpretation of the extremely high correlations is supported by two separate analyses, by Blot and Debeauvais, of a homogeneous set of nineteen industrialized countries and a group of nineteen similar Asian countries, which yield R^2's of only about .69 and .50 respectively.

It is clear, therefore that despite the high correlations emanating from these studies, taking account of per capita income still leaves considerable variation in public educational expenditures to be explained by other factors. Ideally, for international comparisons the dependent variable should be societal rather than public expenditures, and so long as such global estimates cannot be obtained, the availability of private education will be a major determinant of variations in public school spending. Other important factors which could be taken into account include: proportion of school age population, salaries of teachers relative to other salaries, and degree of urbanization. With so many other potential causes of variation in per capita educational outlays, the close, if not unique, relation with income is all the more surprising. A possible explanation may lie in the relationship of income and the supply of finance (i.e., tax revenues). That tax revenues and national incomes are closely related is not at all surprising. If educational budgets traditionally are limited to a constant share of tax receipts, then there will emerge a high correlation between income and educational spending. In this context, the effects of other factors are manifest in widespread differences in the distribution of administratively determined amounts of educational outlays among levels and types of education.

In addition to international correlations of income and educational outlays and estimates of income elasticities, there now exists a substantial amount of descriptive analysis. A recent article by Edding brings together a great deal of data that not only compares countries at a given moment of time but traces educational outlays and income from about 1900 to 1960 for the United States, Japan, Germany, and the Netherlands, and also provides expenditures by purpose and level of government for a number of countries. Edding's main conclusion regarding the relationship of education and income is that "in earlier decades, the correlation between national income per head and the share of educational expenditure in national income must have been more positive than in recent years. There are indications that forty years ago it was the general rule that the level of educational effort, measured as percentage of education expenditure in the national product, was obliged to correspond to the level of average income."[6] According to Edding, the explanation of the reduction in correlation is that today expenditures for education may be based on a general view of the effectiveness of education in promoting economic growth and other national objectives, and thus some countries may spend more as a matter of national policy.

This extremely sensible conclusion has profound implications for the comparative study of educational expenditures. If such expenditures depend *not directly* on the levels of national income, population characteristics, and preferences and traditional values of citizens, but only *indirectly* on these and other factors as they influence national educational policy aimed at transformation of the national society and economy, then statistical models for estimation and explanation of educational outlays are bound to be highly unsatisfactory. In these circumstances it would be far more appropriate to base forecasts and projections of outlays on models which derive expenditures as functions of the educational-expenditures implications of national objectives. This point is developed below in the sections on forecasts, projects, and educational planning.

National Analyses

If, as has been argued above, the educational policies of most countries involve uniform national programs dependent upon national goals, then only where decentralized decision-making prevails will there be revealed underlying relationships between educational expenditures and economic, social, and cultural factors. Nowhere are educational decisions more decentralized than in the United States with its over 30,000 school systems (42,000 as recently as 1960), and nowhere has there been more research on the determinants of local government expenditures. For this reason the discussion of determinants of educational spending within a given nation draw almost exclusively on studies of the United States for illustrations of methods of analysis and substantive conclusions.

Although cross-section analysis of relatively autonomous units of government in a single country make possible a wide range of statistical investigations of expenditures they also raise a host of difficulties. A major problem in the study of public expenditures arises because of differences in financial and other arrangements among governmental units. A federal system of government is necessarily accompanied by inter-governmental fiscal relationships which not only involve flows of funds from one level to another, with or without stipulations regarding their use, but also are likely to include regulations by higher levels of government of performance standards for lower levels. Therefore, the salient methodological problems in studies of public expenditure are the degree of aggregation, the treatment of institutional and administrative arrangements among governmental units, and, in the event that local government is selected for analysis, the treatment of influences on spending that emanate from higher levels of government. A further related problem is that the omission of private education, especially the extensive private higher education sphere, converts any study of educational expenditures into an analysis of determinants of public expenditures rather than a comprehensive study of educational outlays. On the other hand, the inclusion of private outlays creates difficulties, because it introduces a set of determinants essentially different from those related to public expenditures for education.

Another important methodological issue is whether cross-section studies of public expenditures for education should be aspects of overall studies of public expenditures, in which a common set of independent variables is examined for its influence on total general expenditures and on each of a number of functions, or whether a special set of variables should be used for education. In this regard education also presents a problem in the specification of the dependent variable; total, per capita, and per pupil expenditures all have been used in different studies. The use of per capita rather than total expenditures is quite common, representing an effort to take account of differences in population and provide a dependent variable which reflects the financial burden of local schools. However, the per capita measure for education – unlike per capita measures of expenditures for such other public functions as health, hospitals, or even protection – is not a measure of service level. A dependent variable indicative of service levels requires use of the third version, per pupil expenditures.

A final question of method has to do with the relation between historical and cross-section analysis. Aggregate nationwide cross-section analysis is logically impossible, while aggregate time-series involve almost insuperable problems of inadequate degrees of freedom and serious questions of serial correlation. Similar difficulties arise for historical studies of aggregate expenditures, by all governments within a state, and for local governments these difficulties are compounded by changing geographical boundaries and governmental responsibilities. Thus, the all but universal method employed in studies of governmental expenditures in a single country is cross-section analysis. It is essential, however, to recognize that it is illegitimate to treat parameters from cross-section analysis as if they were estimates of responses to historical changes in the values of the independent variables. There is an extensive literature on this point in the study of the consumption function, and the uncontested conclusion is that cross-section estimates must be used with extreme caution in projections of the future. Attention to this and other conceptual and statistical issues regarding the interpretation of findings may have more salutary efforts on policy than ever more extensive efforts to unearth additional fragments of empirical evidence on specific determinants of educational expenditures.

Historical Studies

Werner Hirsch's *Analysis of the Rising Costs of Public Education*[7] is the closest to a definitive historical study of expenditures for local schools in the United States. Hirsch suggests six sets of factors which might have influenced the rising cost of public education: (1) number of pupils in average daily attendance; (2) sociological characteristics of the population; (3) economic characteristics (prices and incomes); (4) variety, scope, and quality of educational services; (5) productivity of schools, and (6) government responsibility. Admitting that the last two are not easily measured, he performs a multiple regression for the period 1900 to 1958, employing as dependent variable the daily total current expenditure, plus debt service per pupil in average daily attendance, and as independent variables, teachers' salaries, the proportion of high school students, the percentage of pupils living in urban areas, the number of supervisory and auxiliary personnel per 1000 pupils, and per capita income. His results show only teachers' salaries and per capita income as significant, and these two variables are so highly intercorrelated that statistically they are essentially the same variable in different form.

Hirsch's conclusions are surprising in that he finds expenditures related solely to income by the low income elasticity of 1.09. The dominance of income may be partly the consequence of the same phenomena found in international comparisons – the range of variation over this period is so wide that income explains a large portion of the variance – and partly due to the considerable correlation of most of the other independent variables with income. The low income elasticity has been explained as the result of Hirsch's using as dependent variable daily instead of annual expenditures per pupil, since during the period covered the average number of days spent in school increased by some sixty per cent. Other time-series estimates of income elasticity which use annual expenditure, especially those of Eugene McLoone,[8] show that low elasticities during the depression and war years were superseded by statewide elasticities averaging 1.61 for the period 1943-44 to 1957-58. Thus Hirsch's elasticity estimate also may have been depressed by the peculiar characteristics of the period studied.

Cross-Section Analysis

The analysis of nationwide aggregates in the context of an educational system characterized by constitutional responsibility at the state level and delegation of control to local governments is naturally suspect. The logical units for study are the states, the individual school systems, and perhaps ultimately the citizens themselves. With all the possibilities for determinants to cancel themselves out in the aggregates and for changes in relative weights of the components to mask underlying relationships, it is not surprising that only when the analysis is disaggregated are characteristics other than income revealed as important factors in the explanation of educational expenditures.

Shifting the approach from historical time-series to cross-section analysis among states and local school systems has a profound influence on the nature of the studies. The range of independent variables must be enlarged to encompass not only differences in the demographic and socio-economic characteristics of the population – characteristics which vary among states and local school districts, but whose overall national variation is insufficient for inclusion in historical analysis – but also differences in governmental structure including tax and grant-in-aid arrangements as well as provisions regarding the autonomy of local school governments. Alternative treatments of these elements are a dominant characteristic of cross-section studies of educational expenditures in the United States.

Among the most significant set of studies of governmental expenditures in the United States are those of Fabricant and Fisher who, utilizing comparable data for 1942, 1957, and 1960, trace the explanatory power of per capita income, density, and urbanization on statewide expenditures for various governmental functions. Their analyses reveal that per capita income and population density are statistically significant in the explanation of per capita expenditures for local schools and for higher education. The proportion of variance of local school expenditures explained is approximately 60 per cent in all three of the years studied, in marked contrast to the reduction from 72 to 53 per cent of variance explained for total general expenditures between 1942 and 1960.[9]

The reduction over time in the explanatory power of the basic three variables and the low multiple correlations for a number of specific functions had led to considerable effort to account for additional sources of variation. Working within the original Fabricant-Fisher framework of aggregate statewide outlays, regardless of whether expenditures are made by state or local governments, Fisher in an analysis of 1960 data[10] expanded the number of independent variables to seven: (1) percentage of families with income less than $2,000; (2) yield of representative tax system; (3) population per square mile; (4) percentage of population in urban residence; (5) increase in population 1950-60; (6) two-party competition; and (7) percentage of population over 25 with less than five years' schooling. The seven-variable equation explains an additional 12 per cent of per capita general expenditure, 5 per cent more of the variation in expenditures for local schools, and another 15 per cent of the variation for higher education. With regard to individual variables, Fisher finds that higher proportions of low income families depress expenditures and population increase is associated with higher levels of per capita expenditures for local schools. The strong positive effect of the variable for the yield of a representative tax system is surely, to a large measure, a proxy for the excluded per capita income. More revealing might have been an analysis which included per capita income, and then estimated the increment to explain variance from the addition of the variable for tax system yield.

A second avenue pursued as a means of increasing explanation is the inclusion of state aid to education as an independent variable. Sacks and Harris performed this analysis for 1960[11] and their results show a coefficient of multiple determination of .721 for local schools when this variable is added to the basic three of per capita income, density, and urbanization which yield for the same year an R^2 of .60. This departure, while taking cognizance of the unquestioned importance of state aid to education, involves severe methodological shortcomings since it includes as an independent variable and a variable which is highly correlated with other of the independent variables. Both of these elements violate the conditions necessary for unbiased estimates of statistical relationships. It would appear that a more satisfactory way of dealing with this matter would be to use variables which reflect the determinants of state aid rather than the actual amounts of state aid. A promising way of dealing with this difficulty is to perform separate analyses for total expenditures, including state aid, and for expenditures out of locally-raised revenues only. Observation of differences in the contribution of independent variables to the explanation of the two dependent variables can reveal much about the effects of state aid.

A third development in cross-section studies of public expenditures is the examination of changes in expenditures as a function of changes in independent variables. One such study by Bahl and Saunders[12] explains 46 per cent of the change in state and local per capita total general expenditures from 1951 to 1960 in an equation which includes as independent variables changes in per capita income, population density, urban population, federal grants, and public school enrollment. The variable for federal grants was almost ten times more important than any other in this equation, and when the same variables are used to explain changes in expenditures for specific functions the proportions of variance explained are substantially less except for highways where again changes in federal grants contribute most of the explanation, and for institutions of higher learning. For local public schools the equation explains only 23 per cent of changes in per capita expenditure, and none of the independent variables have a coefficient of partial determination (partial correlation coefficient squared) of more than .11. The equation for institutions of higher learning, however, explains 56 per cent of the variation, with changes in urban population, federal grants, and per capita income in that order the most significant factors.

Cross-section analysis of changes in expenditures by combining elements of time-series and static cross-section analysis provides information more relevant to prediction, and thus offers considerable promise as a technique. The relatively low proportions of variance explained probably are an indication that one single estimation equation is inadequate for dealing with the range of disparate governmental functions. Future studies should employ estimating equations which include independent variables uniquely germane to particular functional areas.

A fourth, and perhaps most significant effort to expand understanding of the determinants of educational expenditures is study of the local school systems themselves. Use of the local school system as the basis of analysis focuses attention on the fundamental decision-making element. Such analysis, however, while providing opportunity for observation of the relationship of economic, social, political, demographic, and other community characteristics and educational expenditures must also take account of the differing constraints relevant to local school government decisions in the form of tax and borrowing limitations, state standards and state aid arrangements. As a result, although recent advance in the availability of data and funds for this kind of analysis in the United States have led to a burgeoning number of studies that use local governments as the unit of analysis, there is wide variation in the methods employed. As basic variation in approach is the limitation in some studies of the sample of school systems to a single state or metropolitan area, while others include school systems from several states. Further differences in comprehensiveness are that in some analyses educational expenditures are viewed in the context of the total outlays of a city or standard metropolitan statistical area (SMSA) and in others school systems are the sole focus of study. These disparities in approach are compounded by differences in independent variables selected for inclusion. Under these circumstances this paper presents only a summary of major findings.

Among measures of ability to pay, both median family income and property valuation in the locality have been revealed to have the highest correlations with expenditure.[13] A difficulty with property valuation as an independent variable is that property assessments may vary as a consequence of decisions to spend if there is some obstacle to raising property tax rates. When available, equalized or full value measures of property should be employed. There is evidence that income distribution as well as average income is important, with unusual proportions of families having low incomes being associated with lower expenditures and vice versa.

Cross-section studies of expenditures usually do not include prices or costs among independent variables because, for most commodities, a common price prevails for all consumers at a given time. Constancy of cost for local schools throughout the United States, however, is not in fact the prevalent condition since the salaries of equivalently qualified teachers vary according to region and rural, suburban, or central city location. Another potential source of variation in cost among school systems is the existence of economies of scale in education which implies lower costs for larger school systems. Both of these factors influence the *cost* of providing a given quality of education per pupil, and thus are not necessarily inconsistent with higher levels of *expenditures,* since if lower costs lead to more than proportionate increases in quantity demanded, expenditures will rise.

Convincing empirical evidence that costs decrease as the size of individual schools or of entire school systems increase is difficult to obtain. Most multi-variate studies of determinants of educational expenditures find no negative association between per pupil expenditures and enrollment levels. Such findings, however, do not bear directly on the question of decreasing costs, which is concerned with the cost of providing units of output of stipulated quality as quantity increases. If constant or higher expenditure per pupil in larger school systems is the result of better quality or a greater variety of services provided, then decreasing costs still may exist. In one study where numbers of service outputs are used in conjunction with average daily attendance the authors contend there is evidence that "strongly suggests the existence of economies of scale in school district operation."[14]

A number of studies of educational expenditures have used average teacher's salary as an independent variable, but this factor is by no means a measure of cost. It is the resultant of a number of decisions regarding the quality of instruction provided and thus is highly correlated with other variables which reflect demand, such as socioeconomic status of the community. If salary levels are to be used to reflect costs, a variable which measures salaries of teachers of equivalent qualifications is necessary. In the author's study of spending for public education, data was obtained on the salary of beginning teachers, and this variable did prove to be positively associated with total educational expenditures.

Among demographic and social characteristics of local school systems investigators' results have largely been negative despite many promising hypotheses. H. Thomas James and his associates[15] tested median years of schooling, per cent of labor force unemployed, per cent of population non-white, per cent of county population living on rural farms, and per cent of elementary school children in private schools, for a sample of 589 school systems in ten states, and found none to be strong indicators of per pupil educational spending. The author's study of approximately 1200 school systems in twenty-three states added per cent moved into district in last five years, and density, to the list of negative findings. However, my analysis of per capita expenditures showed a positive association with the proportion of school-age children in the population and a negative one with per cent of children in non-public schools.[16]

James *et al.* find a rather strong negative relationship between per pupil expenditures and per cent of housing occupied by the owner. The hypothesis, which also has been applied to statewide studies, is that voters are ready to spend more if as property owners they believe they can shift the tax to tenants or to non-resident owners of property. Although analysis of the shifting of the property tax does not necessarily confirm that such shifting can take place, there is some evidence that behavior is consistent with the hypothesis.

In the study of local schools across the nation a final set of independent variables often included encompasses those that are intended to reflect institutional and administrative considerations. Here the problem of treatment of state and federal aid arises again, with the previously mentioned argument against their inclusion among independent variables. The proportion of aid given in the form of specific or general purpose grants or as equalizing or flat grants has been used as independent variables without conclusive results. Findings with regard to fiscal independence, over which so much controversy has raged, do indicate that independence is associated with somewhat larger expenditures, but conclusions are far from clear-cut because of the prevalence of dependent systems in large central cities where there are enormous competing demands for tax revenues.[17]

The increasing focus of attention of public policy on the metropolitan area has led to still another type of analysis of the determinants of school expenditures. Here the concern is to explain overall levels of expenditures for education in metropolitan areas throughout the country and the sources of variation between suburbs and central cities. These studies avoid systems in places as disparate as rural areas, towns and small cities, and suburbs and central cities, but such study necessitates inclusion of observations from many states thereby raising another set of problems of comparability. Under these conditions it becomes necessary to include state aid or some measure of relative state resources as an independent variable to adjust for differences in state school support to local systems. Brazer's pioneer study of expenditures in metropolitan areas has been followed by a number of others, and in a recent study Woo Sik Kee,[18] through the application of new variables and refinements of others, is able to explain more than twice as much of the variation in per capita educational expenditures among SMSA's as did Brazer for 1957. A similar improvement is noted for highway expenditures, but Kee's equations do not improve significantly on Brazer's results for other functional categories or for total general expenditures. In addition to per capita income, Kee finds among statistically significant variables for education the ratio of central city population to total population of the SMSA (negative relationship), the number of pupils in average daily attendance per 1,000 of population, and the ratio of total expenditures to locally financed expenditures. Perhaps equally interesting are his findings of non-significance for per capita state aid to education and the ratio of owner-occupied housing units to total housing units.

While Kee presents differences in per capita expenditures between central cities and their suburban areas he does not attempt to explain these variations. The most systematic effort in this regard is that of Sacks and Campbell.[19] With regard to per pupil current expenditures for education they conclude that the almost universally higher expenditures in suburbs is the result of higher incomes and larger amounts of state aid per pupil which more than offset the greater public school enrolment ratios in suburban areas. Another of their important findings is that per dollar of state aid received local tax collections for education fell by less than fifty cents, thus indicating that state aid replaces only a fraction of local tax effort.

Projections and Forecasts of Educational Expenditures and Educational Planning

Projections and Forecasts

One of the major purposes of statistical studies of determinants of educational spending is accurate estimation of future outlays. Projections of educational outlays are essential to determine financial requirements of anticipated service levels, and, when combined with projections of expenditures for other purposes, indicate whether there is consistency between estimates of overall expenditures and the total of available resources. However, the results of projections of past trends or behavior relationships are not binding estimates of the future. Observed relationships may not be stable. Estimates of changes in values of independent variables may be in error. Relevant variables may have been excluded from the original analysis. And perhaps most important, policy variables may be changed as a result of deliberate efforts to depart from previous trends and regularities.

In the estimation of future expenditures, then, it is essential to distinguish projections and forecasts from planned changes. The former are efforts to take account of exogenous factors in spending, and their appropriateness depends on the accuracy of the underlying estimation model and the extent to which endogenous policy variables remain unchanged. On the other hand, estimates of planned educational expenditures are derived from the implications of policy goals and their accuracy depends largely on the success of the planners in carrying out their plans and the methods for specification of the educational expenditure implications of policy goals. In practice, estimation of future educational expenditures entails elements of both projection forecast and policy planning, but one or the other generally predominates. The approaches are not mutually exclusive. On the contrary, effective use of these tools implies projections-forecasts to indicate future levels of expenditures derived from anticipated changes in important underlying determinants assuming essentially unchanged educational policies, which are then compared with policy-planning estimates of expenditures based on the educational implications of national goals. It is possible for these two approaches to yield consistent estimates, but when they do not there is a clear indication that present trends in education are not going to provide the educational requisites of future national objectives.

In the absence of a comprehensive set of governmental educational policies in the United States many of those engaged in the estimation of future educational and other public expenditures have followed a middle course combining estimates of future trends in underlying determinants (e.g., population, national income) with certain desirable policy changes (e.g.,smaller class size, compensatory programs in urban areas) to derive overall estimates. In the developing countries and in those developed countries with national educational policies, estimates of educational requirements based on national policy goals play a much greater role in projections of educational expenditure.

In the United States the vast majority of projections of educational outlays have been an aspect of the projection of overall state-local expenditures and revenues.[20] Given the increasing fiscal pressures on state and local governments it is essential to estimate the future balance between services required and resources available, and projections have played a major role in such an assessment. Recently three sets of global projections for the state-local government sector of the United States have become available, and it is instructive to compare their methods and conclusions.[21] Both Dick Netzer, in a study for the Committee for Economic Development, and the staff of the Tax Foundation Inc., have projected expenditures for various governmental functions and general revenues for the state-local sector to 1975. A study by the Council of State Governments, directed by Selma J. Mushkin, has projected expenditures for each state separately to 1970 and obtained overall figures by summing the individual state totals. The methods used in these studies vary greatly. Netzer simply makes four alternative assumptions regarding rates of growth and estimates the expenditures which would result, assuming a stable price level. The "constant cost model" reflects (except for highway expenditures) only the increase in population or, for education, enrollments. His "competitive model" takes account of governmental salary increases necessary to keep pace with increased wages and salaries in the private sector due to rising productivity. He also estimates an "improvement model" where expenditures are from 10 to 15 per cent higher than in the "competitive model" allowing for improvement in the standards of public service. Finally, as a benchmark against which to view the three models, Netzer's highest figures are derived from the assumption that the 1957-64 rate of increase will continue.

Also working with global rather than state-by-state estimates, the fiscal outlook prepared by the Tax Foundation Inc. is developed in a far more intricate manner. As the report states:

> *Expenditures are projected for the several functions by building up estimates of caseloads, unit costs, and prices under legislative programs already in effect – or in a few instances . . . – on anticipatory legislative policy changes. It is a basic assumption that standards per service unit will advance in the future at the real rate of improvement experienced during the period 1960-1965.*[22]

This method leads the Tax Foundation to specific dollar estimates for various expenditures and to the conclusion that "the projections set forth in the study are in no sense predictions of a statement of future needs, based on value judgments. They are rather a true statement of the levels of state and local government activity which would prevail in 1970 and 1975 if the assumptions prove accurate."

The study by the Council of State Governments examines most carefully alternative techniques for the projection of program expenditures. Among approaches discussed and discarded are historical trends and statistical estimates of economic and social determinants. The former is rejected because it ignores program developments and underlying changes in population and income, and the latter because "useful projection techniques have not yet been generated by these studies, especially projections that give encouragement to program planning and advance fiscal budgeting as an integral part of such programing." Instead, the method employed is

> *to define a standard unit of service in each functional area (such as hospital beds, number of classrooms). The work load in each program is projected into the future, as a function of assumptions about economic and demographic variables, and program scope. Then the work load is combined with a projection of cost per unit which again reflects the underlying assumptions about economic and social changes, and increases in quality of public services.*[23]

This is not an appropriate place to discuss methods by which these three studies derive revenue estimates, although it is of interest that they tend to be far more similar than methods for estimating expenditures since they depend so heavily on assumptions regarding rates of growth of income, sales, property values, and other elements of the tax base. Despite the divergent methods used, the estimates of total state-local fund requirements and available sources and of expenditures for local schools and higher education show substantial similarity as revealed in Tables 1 and 2.

Table 1

Alternative Estimates of State-Local General Fund Requirements and Revenues Available
(In billions)

Estimate	1970 Funds Req. $	 Rev. Av. $	1975 Funds Req. $	 Rev. Av. $
Netzer (Improvement Model)	121.2	111.4	143.3	133.7
Council of State Govts.	121.8	107.9 High est. 102.2 Low est.	N.A.	N.A.
Tax Foundation	118.7	122.9	157.8	164.2

Table 2
Alternative Estimates of State-Local Expenditures for Education

Estimate	1970	1975
Netzer	37.1	48.5
Local Schools	28.5	36,8
Higher Education	8.6	11.7
Council of State Governments	44.6	N.A.
Local Schools	31.0	
Higher Education	12.1	
Tax Foundation	41.5	52.9
Local Schools	30.4	37.1
Higher Education	9.8	14.0

The similarity of magnitudes may indicate that in spite of the different methods the same underlying population, income, and other trends ultimately determined the figures, or it may indicate offsetting differences. The three studies do show that a consistent set of expenditures and revenues can be projected such that for 1970 and 1975 the costs of reasonable levels of state-local government services are matched by estimates of available revenues. Specifically with regard to education it indicates that the cost of moderate improvements in future services can be met without leading to serious imbalances in other service levels provided by state and local governments.

These conclusions are reassuring from the standpoint of consistency and fiscal solvency, but wanting as statements of the ability of the state-local sector to satisfy the educational and other requirements for achievement of national goals. That is, none of the methods used in these projections relates future educational spending to detailed estimation of the needs for various kinds of educational outputs derived from knowledge of the effects of education on national economic, social, political, and other conditions. At best the projections and forecasts trace the financial implications and overall consistency of one single set of assumptions regarding the parameters of the educational system. There is no assurance that the parameters chosen for projection reflect the most efficient educational methods, the proper standards for particular programs, or the proper combination of programs.[24] If projections of expenditures are to serve as aids to educational decision-making they must incorporate information about the consequences both of the size and the composition of alternative educational budgets. Thus, estimates of future outlays should be based on the expenditures requirements of those educational programs that best promote national objectives. To achieve this the specification of targets for persons of various educational attainments is a necessary prior step to the estimation of expenditures. This approach to the projection of educational outlays is, of course, familiar as a method used in educational planning and has had a great deal of application, largely in the developing countries.

Policy-Planning and Educational Expenditures

For most of the economically developed countries of the world this discussion exaggerates the differences between planning and projection as approaches to expenditure estimation. When the supply of educational facilities and teachers is sufficient to meet mandated and enforced universal attendance regulations, the educational costs that result from population changes can be estimated, and, so long as costs per pupil remain relatively constant, no problems are created if modification in educational methods or programs are deemed desirable as consequences of changes in technology or patterns of consumer demand. Thus, there can be widespread adjustments in the character of education in response to estimates of requirements for or of returns to different types of educated manpower without major departments from expenditure projections based on incomes, population, urbanization, price changes and the like.

In developing countries the sharp distinction between the two approaches does appear valid. Severe shortages of resources make efficient choices among alternatives essential to the poorer nations of the world. Estimates of resources to be devoted to education in the future cannot be based on numbers of persons in relevant age groups or even on willingness and capacity of individuals to pay for their own education. Rather, there needs to be estimation of the contribution of various types and amounts of education to economic growth and modernization and determination of the educational budgets within the limitations of national resources and other priorities. Under these circumstances projections or forecasts on the basis of arbitrary standards can only lead to extensive waste of resources, and even to negative effects on development.[25]

As is almost self-evident from the description of the policy-planning approach, its major concern is precisely with the development of appropriate standards for the educational system. How are planners to determine the quantity and quality of various educational programs? Elaboration of the methods employed would require at least a paper in itself as well as spilling over into matters covered by other papers at this conference. Instead, this paper concludes with a brief enumeration of the predominant methods and a few comments on each.

The rate of return or benefit-cost approach to the identification of priorities for alternative educational programs applies the criteria of economic efficiency to education.[26] Following the principle that efficiency results when expenditures on a particular investment are carried to the point where the present value of the returns (benefits) just equals the costs, the rate of return concept suggests that those educational programs for which benefits exceed costs by the largest margin should have first claim on additional resources, and that further priorities be in accordance with the relationship between benefits and costs. This serves to indicate relative priorities in the education sector. Resources are allocated among sectors by essentially the same principle, so that the return to the last dollar spent in all sectors tends toward equality.

The benefit-cost approach to government budgetary decision-making is receiving great attention today throughout the United States, but it has not been received with high enthusiasm in the developing countries where government planning has been accorded a major role in national development. Perhaps the major conceptual objection to the establishment of priorities by relative rates of return is that the benefits of a program or project are dependent upon the existence of other complementary programs or conditions, so that identical programs may have widely different returns depending on what contributory factors are also present. For small incremental projects this interdependency is not significant, and returns clearly can be attributed to the project in question. But, if the very essence of the productive capacities of the nation is to be transformed (for example, by an educational program to augment greatly the supply of skilled manpower), does not the return to these expenditures depend on the provision of appropriate physical capital, transportation and marketing facilities, and other contributory conditions? This objection, along with the difficulty of differentiating returns due to education from those due to ability, privilege, and market-power, plus problems in obtaining comprehensive, comparable measures of all benefits have led educational planners, for the most part, to eschew this technique.[27]

One alternative to rate of return analysis is the aggregative approach to the determination of educational priorities developed by Tinbergen, Correa, and Bos.[28] In this method the relationship of national income to proportions of the labor force having secondary and higher education for advanced countries is taken as a standard for less affluent nations. Higher levels of national income are presumed to require comparable proportions of educated persons as those found in developed countries. This approach provides a method for estimation of the rate of growth of the educational system required to achieve the target proportions of educated persons plus the generated need for teachers. The method indicates that without outside assistance the rate of increase during a period of transition may well be inconsistent with other budgetary requirements or with indigenous real resources.

Notwithstanding the extremely important contribution made by this approach to the generally neglected question of the dynamic adjustment of the educational system from one situation to another, this technique has been strongly criticized. It provides no information for decisions about specializations within secondary and higher education. The evidence reveals, not surprisingly, that there is wide variation among countries with similar incomes in the ratio of educated persons in the labor force. The former problem can be dealt with, at the cost of considerably greater complexity, by the division of secondary and higher education into a number of areas of study, but, as we shall see in the manpower approach which follows, the difficulty remains of variation in the education-output relation.[29]

The approach to educational planning which has had the most widespread application is the manpower requirements approach. Generally identified with Herbert S. Parnes, this method takes targets for future sectoral outputs and systematically estimates the occupational requirements within each sector.[30] Then, on the basis of average educational requirements for various occupational groupings, total educational needs are estimated and educational expenditures determined from standard costs. This approach has the great virtue of explicit treatment of inter-dependencies, since the overall sectoral targets can be checked for consistency and the manpower requirements for any sector are developed in light of projected output and manpower requirements of all other sectors.

The essential features of the manpower requirements approach, the constancy of the relationships between education, occupation, and production, have, however, been strongly challenged on the grounds that all these relations are flexible. By assuming fixed coefficients and the irrelevance of prices in the determination of factor proportions in production, this approach ignores the realities of the productive process. The Mediterranean Regional Project of the OECD, which has made extensive application of the manpower requirements approach, has recently produced a study on the constancy of the relationships that underlie this method and has found indications that certain crucial relations may indeed be far more subject to variation than anticipated. Final evaluation of this method will have to await further study.[31]

The application of both the rate of return and the manpower approach to educational planning requires a considerable amount of accurate data. In most of the countries of the world such data are not yet available, precluding the use of these sophisticated techniques. Also, most developing countries are trying to use education not only to obtain skilled manpower, but for social and cultural transformation as well. Even if a highly elaborate technique could be applied, none provides a basis for estimation of educational requirements for modernization, national integration, or societal cohesiveness. Such objectives are generally presumed to require far more widespread primary and adult education than a manpower or rate of return approach would indicate. These considerations have led to the determination of educational requirements by rule of thumb proportions of enrollments of the relevant school age population groups. For example, the UNESCO sponsored Conference of African Ministers of Education[32] recommended as targets for 1980, for first level, secondary, and higher education respectively 100, 23, and 2 per cent enrollment of relevant age groups. Starting from such enrollment ratios, the use of population trends and standardized cost figures permits estimation of expenditures.

Although one cannot help but sympathize with the extraordinary difficulties in the determination of national priorities for education intended to serve such manifold purposes, the shortcomings of the above approach are virtually damning. No consideration is given to differences among countries either with regard to their existing stock of educated persons or their needs for trained manpower. The scope of educational programs is established without regard to costs, availability of resources, or competing national needs.

Conclusions

The dominant trend in public budgeting in the United States today is program evaluation in comparison with program costs. This revolution in government financial decision-making has the potential of vitiating previously observed empirical regularities in expenditure patterns of state and local governments, and rendering meaningless the projections of expenditures based on extrapolations. As more and more programs are determined on the basis of analysis of their effectiveness, expenditures will derive essentially from policies and plans rather than from changes in exogenous factors. It will be a happy day, indeed, if this trend increasingly directs the attention of experts away from projections of the past toward exploration of the potentialities of education and other public services for the achievement of the social goals of equity, efficiency, and adequate living standards for all.

References

1. Quoted in Seymour Sacks, "Present Patterns and Historical Trends in Educational Expenditures: The Constraints on the Planning for Education in Developed Nations" in *The Yearbook of Education: 1967* (London: Evans Brothers Limited, 1967).

2. BARRY N. SIEGAL, "On The Positive Theory of State and Local Expenditures," in PAUL L. KEINSORGE, ed., *Public Finance and Welfare* (University of Oregon Books, 1966).

3. This paragraph is based largely on the analysis and conclusions of Sacks, op. cit.

4. Published in German under the title *Internationale Tendenzen in der Entwicklung der Ausgaben fur Schulen und Hochschulen* (Kiel, 1958).

5. D. BLOT and M. DEBEAUVAIS, "Expenditure on Education in Developing Areas: Some Statistical Considerations," in *Conference on the Financing of Education for Economic Growth* (Paris, France: Organization for Economic Co-operation and Development).

6. F. EDDING, "Expenditure on Education: Statistics and Comments," in E. A. G. ROBINSON and J. E. VALZEY, *The Economics of Education* (New York: St. Martin's Press, 1966), pp. 41-42.

7. WERNER Z. HIRSCH, *Analysis of the Rising Costs of Public Education* (Washington: Joint Economic Committee, Study Paper 4. U.S. Government Printing Office, 1959).

8. EUGENE P. MCLOONE, Effects of Elasticity on the Financial Support of Education, (unpublished doctoral dissertation, University of Illinois, 1961).

9. For a general review up to 1963 of empirical studies of public expenditures with emphasis on education see JERRY MINER, *Social and Economic Factors in Spending for Public Education*, (Syracuse, New York: Syracuse University Press, 1964), pp. 37-65.

10. GLENN W. FISHER, "Interstate Variation in State and Local Government Expenditure," XVII, *National Tax Journal*, (March 1964), pp. 57-74.

11. SEYMOUR SACKS and ROBERT HARRIS, "The Determinants of State and Local Government Expenditures and Intergovernmental Flows of Funds," *Ibid.*, pp. 75-85.

12. R.W. BAHL and R.J. SAUNDERS, "Determinants of Changes in State and Local Governmental Expenditures," XVIII, *National Tax Journal* (March 1965), pp. 40-57.

13. For example, see H. THOMAS JAMES, J. ALAN THOMAS, and HAROLD J. DYCK, *Wealth, Expenditure and Decision-Making for Education* (Stanford, California: School of Education, Stanford University, 1963), p. 84.

14. HENRY J. SCHMANDT and G. ROSS STEPHENS, "Measuring Municipal Output," XIII, *National Tax Journal* (December 1960), pp. 369-75.

15. JAMES, et al., op. cit., pp. 69-100.

16. MINER, op. cit., pp. 93-138.

17. For example, see JAMES, op. cit., p. 98.

18. WOO SIK KEE, "Central City Expenditures and Metropolitan Areas," XVIII, *National Tax Journal* (December 1965), pp. 337-53.

19. ALAN K. CAMPBELL and SEYMOUR SACKS, *Metropolitan America: Fiscal Patterns and Governmental Systems* (New York: The Free Press, 1967).

20. In addition to the three studies cited below, projections of expenditures for education include: OTTO ECKSTEIN, *Trends in Public Expenditures in the Next Decade* (Washington: Committee for Economic Development, 1959); GERHARD COLM and MANUEL HELZNER, "Fiscal Needs and Resources Over the Next Decade at All Levels of Government," and DICK NETZER, "Financial Needs and Resources over the Next Decade: State and Local Governments," in *Public Finances: Needs, Sources, and Utilization* (Princeton: Princeton University Press, 1961); SELMA J. MUSHKIN and EUGENE P. McLOONE, *Local School Expenditures; 1970 Projections*, and *Public Spending for Higher Education, 1970* (Chicago: The Council of State Governments, No. 1965, Feb. 1966); KENNETH A. SIMON and C. GEORGE LIND, "Expenditures," in *Projections of Education Statistics to 1973-74* (Washington: U.S. Department of Health, Education, and Welfare, 1964); *Financing the Public Schools, 1960-70* (Washington: National Education Association of the United States, 1962).

21. SELMA J. MUSHKIN and GABRIELLE C. LUPO, Project '70: Projecting The State Local Sector. Mimeo. (Washington: The George Washington University State-Local Finances Project, March 1966); DICK NETZER, State-Local Finance in the Next Decade. Mimeo. (Aug. 1965); *Fiscal Outlook for State and Local Government to 1975* (New York: Tax Foundation, Inc. 1966). Appendix B of the last named study comprises a brief comparison with other studies.

22. Tax Foundation, op. cit., p. 18.

23. MUSHKIN and LUPO, op. cit., p. 14.

24. For a discussion of this point which elaborates the distinction between the internal efficiency of the educational system and the evaluation of the product of schools see JERRY MINER, "Financial Support of Education," in *Implications for Education of Prospective Changes in Society* (Denver, Colorado: Designing Education for the Future, 1967), pp. 310-316.

25. The potentially "dysfunctional" effects of education are persistently emphasized in D. C. PIPER and T. COLE, eds., *Post-Primary Education and Political and Economic Development* (Durham, North Carolina: Duke University Press, 1964).

26. There are, under certain conditions, subtle differences between rate of return and benefit-cost analysis which do not affect the discussion presented here.

27. A spirited defense of the rate of return approach is found in M. BLAUG, "The Rate of Return on Investment in Education in Great Britain," XXXIII, *The Manchester School of Economic and Social Studies* (Sept. 1965).

28. See the seminal article by TINBERGEN and some application in *Econometric Models of Education* (Paris, France: Organization for Economic Co-operation and Development, 1965).

29. See the critiques of this approach in *The Residual Factor and Economic Growth* (Paris, France: OECD, 1964), pp. 170-197.

30. The basic reference is HERBERT S. PARNES, *Forecasting Educational Needs for Economic and Social Development* (Paris, France: OECD, 1962). For application of this method see the individual country reports of the Mediterranean Regional Project published by the OECD.

31. An outstanding criticism of the manpower requirements approach is found in G. A. ANDERSON and M. J. BOWMAN, "Theoretical Considerations in Educational Planning," in D. ADAMS, ed., *Educational Planning* (Syracuse, New York: Syracuse University Press, 1964), pp. 4-46.

32. "Outline of a Plan for African Educational Development," in *Fiscal Report of the Conference of African States on the Development of Education in Africa* (United Nations Economic Commission for Africa, UNESCO, UNESCO/ED 181), p. 19.

Program Budgeting Systems and Educational Decision-Making

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1. Evolving Views on Public Finance and the Economic Nature of Education

The Balanced Budget

In the introduction to the report of a 1962 symposium on the U.S. Federal Budget, Seymour Harris made this remarkably concise statement on current criteria for sound public management:

"*What conclusion are we to draw from this symposium? Perhaps the most important is that no one budget is adequate for all purposes.*"[1]

Collectively the articles from that symposium demonstrated the new balances and formats that must be incorporated in, or augment, traditional budget documents to make them effective tools for decision making in public management.

Before looking at the new ideas on budgeting for public agencies, it is worth noting the essential character of the traditional budget documents that modern students of public finance have been attempting to improve upon. The traditional budget document is a simple adaptation of the equality that is the basis of double-entry bookkeeping and was an old idea when Luca Pacioll wrote about it in 1494:

Assets – Liabilities – Proprietorship
and in the adaptation:
Revenues – Expenditures – Surplus

It is only expected of well-kept books that they meaningfully relate past financial transactions to net worth. A budget, on the other hand, is expected to be a tool for effecting intelligent decisions about allocating scarce resources over some segment of future, a control device operating on the activities of sub-agencies and a document of some value in forecasting a variety of developments. This being the case, it is logical to expect that an organization's budget should be considerably more than a projection of bookkeeping.

However, so long as the managers of public affairs see public budgets primarily as statements of credit worthiness, and so long as a constituency views its franchise as primarily a check on the profligate propensities of public officials, there is no reason why the budgets of the state or of public agencies should evolve beyond the traditional instruments for balancing net financial activities of government and treasury surplus. Appropriately, men like Adam Smith and David Ricardo, whose views of the world were necessarily coloured by two overlapping series of costly national wars, wrote eloquently of the evils in anything more than minimal government spending and the compounding danger of deficit government spending. The state was profligate and spent unproductively money that was sorely needed for reinvestment in commerce and industry.[2] Debt financing of government spending freed the sovereign of the restraint that was popular resistance to taxation. He was thus encouraged to be all the more reckless in foreign policy and profligate in running his household. This was, more or less, the view of the early classical economists on government spending and state debt.

By the third quarter of the nineteenth century, the interests of the government and entrepreneurial classes in the industrializing countries had been quite effectively joined, and, in the context of Europe's most peaceful century, the pressures for rising public debt were much less formidable than they had been during the eighteenth century and the first quarter of the nineteenth. John Stuart Mill, writing at almost the middle point of the century, was able to note at least some conditions under which not only government spending. but even government borrowing are not foolhardy. More importantly, "after Mill, the major classical economists devoted less and less attention to problems of the national debt," and by the turn of the century, "the culmination of the classical tradition – Marshall's Principles – devotes no attention whatever to the subject."[3]

Before the end of the century, political economists were willing to speak with some enthusiasm for increased government expenditure for education,[4] public health,[5] urban and interurban transportation, and even for debt financing of capital expenditure.[6] Students of political economy were in the process of freeing themselves of the cynicism concerning the utility of government expenditures that earlier classicists, who knew only the mercantilist governments of the eighteenth century, had bequeathed them.

The critics of public finance were approaching the point when they would concede that the same degrees of freedom existed in government management as existed in business management. Just as it was acknowledged that debt financing of industrial capital equipment did not necessarily reduce net worth, it was granted that debt financing of selective public capital might not be interpreted as meaningfully reducing the treasury surplus. Writing in 1892, C. F. Bastable made it clear that the financing of "the Prussian railways, or even of the English telegraphs" by debt was sound public management.[7] About investment in what we conventionally call human resources, however:

A loan for the purpose of extending education, or for improving the housing of the workers, ... may ... so increase the income of the community as to make the tax receipts greater, without any increase either in rates or in rigour of collection. Regarded in the abstract such a proceeding seems defensible; the real objections to it arise from the difficulty of application. The results of expenditure of the kind are hard to trace or measure, and any statement respecting them must rest in a great degree of conjecture ... Prudence seems accordingly to suggest that borrowing should hardly ever be adopted except for strictly economic expenditure ...[8]

If Bastable was conceding the same degrees of freedom to public as to business management, he certainly was not going beyond that point. It was sound to balance revenues against expenditures minus some small portion of capital outlays, but they must be for substantial, locatable capital items about which it is possible to speak with some certainty of their imputed future revenue-income.

Though proceeding with caution, students of political economy at the turn of the century were applying the concepts of marginalism that had been so effective in rationalizing commercial investment to public management. These concepts had important effects on practical politics and administration. In the U.S., for example, the efforts at the reorganization of the executive branch of government since the Taft Administration have been, in large part, efforts to fashion budget concepts that will facilitate the designing of indicators of government costs and benefits, that will serve the same purpose as market prices for the private sector.

The Taft Commission's recommendation that performance units be related to expenditure categories, the creation of the Budget Bureau in 1921, the elevation in status and increased autonomy of that body in the 1930's and 1940's, the recommended reorganization of the Executive by the Hoover Commission in 1949, and finally, the exciting tempo of present efforts to apply concepts of budgeting suitable to the scope and varieties of government activities in the 1950's and 1960's are milestones in the history of efforts to rationalize government expenditures through more meaningful budgeting. More meaningful budgeting has meant the construction of new budgets that help to answer questions about rational management in the public sector: questions that the balance incorporated in traditional government documents was never intended to serve. These are the new budgets and the questions with which the above mentioned symposium dealt.

Government budgeting (on all levels) is an institutionalized activity with peculiarities that can only be explained in the conetxt of the history of a particular society. In spite of national peculiarities, however, it seems probable that there are identifiable stages in the development of budgeting. All or most of the developed nations are now approaching the stage where financial balances (at least the conventional selection of those balances) are far from adequate documents for the control, critique, and summarization of government management.

Presumably, politicians and political economists will continue to produce new kinds of, and formats for, public budgets to bring actual public expenditure in their respective societies closer to a model for the perfect pattern and quantity of public expenditure. We have such a model of perfection in the words of Hugh Dalton, written in 1922:

A public authority, not being a person except in a legal sense, cannot estimate the many utilities of its varied expenditures as an individual can. But the general principle on which statesmen should attempt to act, is the same. The marginal utility to the community of all forms of public expenditures should be equal, and the distribution of a given total of expenditure between different objects thus theoretically determined.*

Public expenditures in every direction should be carried just so far, that the advantage to the community of a further small increase in any direction is just counterbalanced by the disadvantages of a corresponding small increase in taxation or in receipts from any other source of public income.[9]

Without such a model, there would be no justification for such statements by planners – educational or otherwise – as the following: *Today planners agree that virtually all sources of finance should flow into a common pool for use in accordance with the priorities of the plan.*[10]

In accord with Dalton's model, and more or less in accord with this suggestion of pooled financing, the approach to budgetary reform that will be discussed below allows for the allocation of resources as if from a common pool, whether such a pool actually exists or not.

The Rationalization of Formal Education

In the literature of economics, parallel to the evolution of a system of budget concepts for the rationalization of government spending is the evolution of concepts on the rational exploitation of formal education. As with the development of spending and budget concepts, changes in ideas on the rationalization of education can be accounted for partially as successive refinements of concepts by a series of inspired philosophers, each having the advantage of his predecessors' work to build on; and again partially by a re-thinking of the same phenomena under new conditions.

Adam Smith did not speculate on education's contributions to a post-mercantilist society. Certainly he was as justified in his assumptions about the dysfunctional character of formal education as he was in his assumptions about the wastefulness of government expenditures. He saw education for workers as being of value primarily for improving the non-working hours of the masses. In essays dealing primarily with national product, he appropriately regarded education as a marginal topic. His inability to specify exactly why and how an economist should concern himself with education was very likely related to the problems he had as a moralist in coping with the double-edged implications of the increased efficiency of labor that specialization promised.[11] Smith's early successors were scarcely more willing than he to concede that education was immediately related to productivity.

By contemporary standards, classical economists were cautious in assigning any direct contribution of education to productivity. The one concrete, though indirect, relationship that all of them seem to have emphasized was that acting through fertility. It was generally conceded, and noted, by the classicists from Smith to J. S. Mill, that education could contribute to a more capital intensive economy because it somehow worked as a contraceptive, but they were reluctant to claim any more direct connection between education and productivity. However, as Rudolph Blitz points out in "Some Classical Economists and Their Views on the Economics of Education,"[12] the five classical economists he chose for discussion – Smith, Malthus, Senior, McCulloch and Mill – realized that the principle of identity of self-interest and common good was not applicable to the field of education. Moreover, though Smith was reluctant to advocate public education, all the others advocated it in turn with increasing zeal.

By the seventh decade of the nineteenth century, in the writings of Anglo-Saxon classicists, there could be found theoretical discussions of the economic aspects of education quite as complete as can be found in the seventh decade of this century. John R. McCulloch had shifted the emphasis in the field from education's ameliorative effects on the general condition of the labor force to the role of education as agent for meeting the vocational requirements of a modernizing state.[13] He then took the next logical step of identifying educational expenditure as capital investment. Mill not only accepted the idea of human capital, but even discussed the fine points of distinction between regarding human beings as capital and acquired human characteristics as capital.[14]

**i.e., via money and the market.*

There existed, then, one hundred years ago, a satisfactory theoretical basis for sustained efforts at quantification of the capital value of acquired characteristics. Of course, it must also be said that such convincing economists as Henry George were writing arguments against the acceptance of the concept of human capital, and effectively ridiculing education's supposed contribution to productivity,[15] and important and sustained efforts at quantifying education's economic contribution were not forthcoming. Nevertheless, in Marshall's writings at the turn of the century it was apparent that the more-or-less direct contributions to labor productivity of education were accepted as real and significant,[16] and the fine points of the human capital metaphor no longer warranted such capital's exclusion from serious consideration as a factor of production.

If Bastable's above-mentioned unwillingness to "capitalize" the imputed income-revenue from improved human resources was, indeed, because they are "hard to trace or measure," sometime between 1917 and 1967 he should have relented and begun to allow some portion of expenditures for education to be treated as capital expenditures that might wisely and morally be excluded in "balancing" current expenditures and current revenues, i.e., the net of these with surplus.

In the U.S. since 1917 the flow of literature attempting to fix the concept and/or measure the amount of educational capital has been steady and growing at an ever increasing rate. In that year a Bulletin of the U.S. Bureau of Education by A. Caswell Ellis was published entitled *The Money Value of Education*. It was a rather simple demonstration of the differential earning rates among people of varying levels of education. Its importance is as an indication that the concept of education as investment was accepted as legitimate, at least by some students of education as well as by some economists.

Fifteen years later, Allan G. B. Fisher's "Education and Relative Wage Rates" appeared in the *International Labor Review*, XXV(June, 1932). His bibliography indicated that both educationalists and economists had become considerably more active in writing about education as an economic phenomenon since 1917.

In 1935, J. R. Walsh's "Capital Concept Applied to Man" appeared in *The Quarterly Journal of Economics*. Using several samples of college graduates, Walsh discounted their probable future incomes at four per cent to arrive at a present value for future returns. This study, depending as it does upon the assumption that personal incomes are an index of the social utility of individuals, can be described as the model for most succeeding studies that have attempted to use incomes to demonstrate the returns to education.

In the 1950's, a new intensity in the concern for and research on investment in human capital produced new approaches to its quantification. The main motivation for that concern was probably the increasing impact upon growth oriented economists of the work of Solomon Fabricant[17] and others[18] demonstrating that the increments in physical capital explain only a relatively small part of the rapid growth in per capita production in the advanced countries. Efforts to explain that increased production led to greater interest on technological change and its behavioral implications.

Efforts at using "product unaccounted for by labor and capital increments" as the basis for estimates of the returns to educational investment are grouped under the rubric of the residual approach. It is a large jump, however, from efforts at explaining incremental output by technological change to using those increments to measure the returns to educational investments. The man who contributed most to the rationalization of this transition is Gary Becker.[19] The most prolific author associated with the residual approach is Theodore Schultz.[20] He makes a strong case for assigning to education much of the growth in U.S. product that cannot be accredited to increases in labor and capital. So convincing is he (as are some other current writers) in his case for relaxing the traditional boundaries of the concept of capital, that, at least for the time being, it can be said that only a few economists and others rebel at the conceptualization of either people or acquired mental conditions as capital.

The several approaches to the quantification of education as capital or to the returns on educational investment are all subject to qualifications and severe criticisms of the assumptions on which they are based. But neither those scholars with a brief for one approach as opposed to the others, nor the serious students of education who still reject all the approaches devised to date, deny that the economic benefits of education are real, significant, roughly measurable, and are determined both by the total and the mix of resources committed to the schools. For better or for worse, the cluster of institutions that make up the educational systems of the advanced nations have been tampered with by empirically oriented students of economics, consistently, for half a century now.

During the last twenty years in North America these institutions have constituted an industry with a growth of approximately 13 per cent per annum. In Canada the percentage of Gross National Product expended on formal education has grown from 2.4 to 6.1 per cent in the years since the World War II.[21] In the U.S. that percentage has grown from two to seven in the same period.[22] In numbers of dollars, the expenditure increase was better than tenfold in each case.

In the context of our intellectual heritage and of the scope and structure of our public expenditures, it would be a historical oddity if education were excluded from current efforts at the rationalization of public management. The students of the economics of human resources have convinced us that Bastable was wrong about the unsubstantial and conjectural nature of education's benefits. This, of course, can not help but affect the numbers that go into the arithmetic problems we perform in our attempt to spend our resources according to Dalton's model.

2. Characteristics of the Planning – Programming – Budgeting Systems Approach to Public Management

The Sustaining Environment
Three years ago C. Arnold Anderson and Mary Jean Bowman (with appropriate credit to Yehezkelf Dror) coined an epithetic definition of planning that few writers on planning, particularly planning for underdeveloped countries, have failed to quote:
Planning is the process of preparing a set of decisions for actions in the future.[23]

It is a definition that seems to describe planning for the underdeveloped nations pretty well. Those, after all, are states still waiting to experience the phenomenon of rapid and continuing social and technological change. Appropriately, change is a future oriented concept and there is a mañana attitude associated with planning in those countries.[24] This attitude is less characteristic of planning for the rich and powerful societies. In these countries change is the important thing about yesterday, today, and tomorrow. They have planning to the degree that clever people forecast, manipulate, and prepare for these changes so that the returns to living will be optimized – for somebody – tomorrow. The people who do that planning are the people who have power today. They do it with what they learned from changes yesterday. How big a future segment they include in tomorrow depends upon how yesterday's experiences make them feel about probable returns on today's expenditures.

The current prevailing mood in the rich nations is that life is not so short, tomorrow will be like today only a little bit different, and the returns on public expenditures will be high. Therefore, tomorrow is a pretty long future segment to make decisions about today.

Andrew Kopkind's "The Future-Planners" in *The New Republic* (Feb. 25, 1967, pp. 19-24) nicely summarizes the popular and official attitudes prevailing in North America on decision making. "Future-planning is in many ways the most fascinating and certainly the most fashionable thing to be doing this year in both government and the social sciences," he says. Much of the credit for the changing attitudes on the legitimate range of public decisions is given to the acceptance of the concept of social accounting as it is presented by Bertram Gross. Kopkind does not point out, however, that the popular conviction that crime, poverty, and sub-standard housing, parking problems, etc., are rapidly becoming intolerable might very well have resulted in constraints on or even threats to existing authorities rather than a broadening of the franchises of public agencies. As Kopkind does point out, prevailing attitudes on "future planning" include a popular concern for improving the tools and techniques of public management – concern on the part of members of a society in one of its conservative, farsighted moods and facing the compounding logistical problems of a growing, industrializing, urbanizing population. This is the context in which the planning-programming-budgeting systems approach is gaining adherents. The term implies a cluster of management tools, an approach to integrating them into the decision-making process, and an attitude on organizational management. It does not allow a dichotomous classification of management responsibilities into planning activities and current decision making.

The Minimum Necessary Requirement of a PPBS
The initial activity in the sequential (and reciprocal) functions that constitute a PPB System is the refinement, translation or restatement of organizational goals to produce operationally meaningful objectives. It is patently logical that in the creation of any organization every decision authority should be thoroughly familiarized with the operational objectives of the organization and the functional contribution of his agency to those objectives. It is equally obvious that an organization that survives for some years in a society with rapidly shifting problems and evolving technology should be in a constant process of respecifying its objectives. The world is such, however, that decision making authorities of not-for-profit organizations find the specification of operational goals a very difficult and painful thing to do. Consequently, the prompting of specified, operational objectives is still a major responsibility of the PPBS literature.
Not-for-profit organizations must ask themselves why they exist, what they produce, and for what purposes. Otherwise, they can be defined only as random activities whose sole purposes may be to provide income for those who happen at any moment to be a member of the organization.[25]

The operational objectives of the organization are the stuff from which programs are made. Programs are the first step in reduction of major policy decisions to meaningful decision assignments for successively inferior locations of management. The budgeting operation in this system becomes an effort to demonstrate an organized list of programs derived from objectives, and to associate the major components of organizational costs with the programs they serve. In organizations with multiple levels of management, the budget for an organization program is an aggregate of costs associated with the programs of successively subordinate levels, probably described as sub-programs and program elements on the organizational level.

Werner Hirsch defines a program as "a cluster of government activities that are in closer competition with each other than those outside the program and whose output has a clearly identifiable purpose."[26] If they were not in competition with one another, there would presumably be no need for decisions in administering them. On the other hand, it must be assumed that these activities are also complementary, or there would be no justification for their taking place simultaneously.

The program in this system becomes a meaningful tool in budgeting only when accompanied by input or cost estimates. The estimating of inputs or costs for programs is not a calendar linked activity. The time dimension of this activity is determined by the quantitative and chronological specifications derived from operational objectives. The annual budget thus becomes a cross-sectional statement of current costs extracted from a number of time-series documents. The time-series documents help to forecast future costs of programs and to evaluate the contribution of this year's sacrifices to organization objectives. Long-range planning, decision making and budgeting thus become integrated aspects of the management process. This, perhaps, is the *sine qua non* of PPBS.

Expected, Possible and Optional Characteristics
There is what might be called an 'original philosophy' about program and performance budgeting which embraces the following points. First, a government budget should describe accomplishment and not just objects of expenditure or 'things bought,' Second, work programs should be meaningful to all centres of decision authority ... Third, program and performance budgeting requires substantial decentralization within an organization, both for the preparation of the budget and for its execution. It follows that program administrators must have authority, during budget executions, to transfer funds within the program in order to attain established objectives.
One of the interesting things about experience of the last 15 years is that point one of the 'original philosophy' continues to prevail but points two and three have not survived so well.[27]

Quite obviously, PPBS and the parallel development of electronic data systems can result in greater degrees of freedom in determining the mix of resources applied by subordinate management. These developments can also result in greater centralization of management simply because new situations increase the physical ability of higher levels of management to pre-empt decisions of lower levels. There is a third way that PPBS and electronic data systems can affect the degree of centralization. They can facilitate a pragmatic approach to the question of centralization, and cause organizations to consider degrees of centralization more a technical than a philosophical question. For any given organization, this year might see increased centralization, next year increased decentralization. And while centralized administration is pre-empting some decisions, it might be divesting itself of responsibility for others.

Closely related to the question of autonomy of subordinate decision makers is the question of co-ordination among organizations when programs suggest the integration of functions of several agencies from more than one organization. PPBS does not guarantee more effective inter-organizational co-operation, but there is historical evidence of this as a potentiality of PPBS. In 1954 Frederick Mosher, writing on the theory and practice of program budgeting, strongly implied that really effective implementation of program budgeting (for the U.S. Armed Forces) would have to wait for re-organization of existing agencies in accord with the "logical" program structure.[28] By 1963 Lt. Commander Robert Massey could describe the facilitation of inter-organization programs without the complication of restructuring traditional organization as a major virtue of program budgeting. In his words, the big tests now "for old systems as well as new ones are: what contribution can it make to the jobs which must be done to carry out U.S. national security objectives?"[29]

The essential theme of Clausewitz, that the general principle of soldiering is the destruction of enemy forces and not maneuver and siege, and of Hugh Dalton, that the general principle of public management is that the marginal utility to the community of all forms of public expenditure should be equal, had evidently been captured in the jargon of professional management in the U.S. Defense Department under Robert MacNamara. There is, of course, no guarantee that this attitude will prevail in the present attempt to generalize throughout the U.S. Executive Branch the satisfying results of a brief period in the Defense Department.

The concept of the performance budget predates that of the program budget. The point has been made that any definition of these complementary techniques "should associate program with a set and performance with a subset."[30] The principle of this subordinate concept in PPBS is that agency services be stipulated in meaningful units of output, ideally in units of cardinal additive measures such as blocks patrolled or people fed. Less perfect, less positive measures of output may still be helpful in estimating the relationships between resources consumed and services rendered by an agency. Elements of expenditure, much smaller than those major cost components associated with programs in the budget, are then systematically linked either in the budget or in supporting documents with those performance units. It is upon the perfection of performance budgeting that the rationalization of technological choices through budget control depends. A highly developed program budget, supported by – or containing – detailed performance data, is, in turn, the best available tool for explaining the relationships between resources committed and services rendered (or expected). More important, it is the logical foundation for the study of alternative programs serving policy objectives and for evaluating objectives themselves in the context of unopted modifications. Whether program budgeting will be primarily a sophisticated professional procedure or the bridge between empirical research and professional practice will depend upon the role assigned to, and the development of, supporting analysis in PPBS. If indeed we have reached the stage when public management is to be the outstanding example of the social sciences in application, budgeting will be the product of policy making and economic cost-benefit analyses. Those cost-benefit analyses, in turn, will be the product of increasingly sophisticated system analyses incorporating the empirical efforts of the social, behavioral, and physical sciences. In this case, PPBS can be the conventionalized approach to the internal and external balance of resource allocation described in 1922 by Hugh Dalton as the condition of completely rationalized public administration.

Research and Innovation in PPBS
Dalton's model can be regarded as static. The approximation of marginal perfection can be achieved at any given stage of the several arts, i.e., the art of management and the art of applying each of the services for which the organization assumes responsibility. On the other hand the model must be regarded as dynamic under the assumption of de-

velopment in those arts. In this case research and dissemination of results must be an organization objective. Whether such activities will constitute major programs, program elements at the basic functioning level of administration, or a combination of both will presumably be determined experimentally. The "deliberate policy for change . . . the building in of permanent irritants into existing administrative systems, with the aim to analyze and constantly evaluate present policy directions in relation to stated objectives and new conditions"[31] that Kjell Eide emphasized can thus be called an implied virtue of PPBS. It is further implied that the allocation of resources to research, educational and otherwise, will be determined by estimates on the relative input – output ratio of that activity to all other organizational activities.

Under the assumption of developing arts, then, the salient characteristic of PPBS is that as a managerial system it is complete. It presents to management an approach to decision-making incorporating the principles of rational resource allocation and the results of empirical research. It also presents a frame of reference for on-going empirical research in the form of institutional self-examination with immediate payoffs to management.

3. The Promises and Problems of PPBC Applied to the Management of Public Education

The Military-Education Analogy

Even enthusiastic spokesmen for program budgeting as a promising tool for better rationalization of educational expenditures feel compelled to offer a number of caveats to the people who will bear the responsibility for its acceptance or rejection. It is not a substitute for decision makers; it is not a sophisticated but a mechanical statistical decision making process; it is not a perfect substitute for informed intuition; it is not a revolutionary management tool.[32] It is a collection of techniques, ideas and conventions that have already produced a growing number of supporters, a special jargon, a respectable quantity and quality of literature, and some encouraging results.

It is identified with the efforts of defense contractors in the mid 1950's to organize more efficiently the production of whole new weapon systems that required the synchronization of research, production, and evaluation efforts being performed by many different military and civilian agencies.[33] In this decade, it has been associated with the reputed improvement in management of the Defense Department proper. Doubtlessly, the very large number of vertical and parallel agencies, with varying degrees of co-ordination of management, that comprise the educational system of any state, province or city suggests the same managerial nightmare as do the many organizations producing a weapons system. The problems of running a modern "multiversity" certainly are related, at least in some ways, to those of running a giant industrial firm with many branches, departments, and products. And, of course, the growth of formal education as a drain on public resources and the rapidly changing technology of education are analogous to phenomena in the U.S. Defense Department. At a time when adaptations of PPBS are being fashioned for all sorts of private and public organizations, these analogies make it unthinkable that attempts would not be made to involve at least some parts of the education industry, even if there were not the more substantial reasons offered in Part I above.

PPBS *as "Gradual Reform"*

One of the most promising aspects of PPBS as an approach to reforming educational decision making is that it can be implemented in its entirety or in part. It may be applied to some sub-agencies of an organization and not to others, thus facilitating its adoption an on experimental basis and its gradual cultivation within a particular organization.[34] Moreover, it can be a supplement rather than a replacement of management procedures already in use. Notably, even the basic document of the new system, the program budget, will presumably co-exist with the line item budget in almost every case, rather than replace it.

Just as an organization can implement PPBS on an experimental basis, presumably experiments with program budgeting in some school systems or in some universities can be justified as contributing to the development of educational management generally. Such projects as the one recently initiated in Dade County, Florida, to do the research preparatory to implementation of a program budget in that large metropolitan area,[35] should furnish important results of interest to all North American urban or metropolitan school districts. However, because it is recognized that a PPBS must be tailored to the peculiarities of existing institutions, it seems that only after a number of such experiments (i.e., the actual managerial reforms, not just the study) may generalizations be justified on the process of implementing PPBS in urban school systems.

PPBS *and the Modification of Inflexibilities*

Presumably it is easier to evoke change in an organization that has been forced to absorb and promote new, young outsiders in management than in an organization that has grown used to its incumbents and their peculiar styles of management.

On the assumption that the rapid growth of the education industry is not about to come to an end, it can be said that the opportunity has not yet been missed to exploit the disruptions in organization inherent in rapid growth. Unless at some time in the past our urban educational decision makers hit upon the perfect mix for resources, it is likely that so far we have not mitigated the sad necessity for rising expenditures with more inspired use of the resources they buy. It is remotely possible that the following table indicates that the great cities of the U.S. have imaginatively reshaped school programs to meet changing needs in recent years, and coincidentally have found themselves using resources in the same proportion over time. More likely, however, as Walter Garms suggests, the table reflects the "rigidity . . . introduced through the widespread use of formulas for the determination of various items in the budget."[36]

Total Percent Distribution of Current Expenditures of 13 Cities, 1959-60 and 1965-66

Category	1959-60 (Actual)	1965-66 (Budgeted)
Administration	2.6	2.7
Instruction	72.3	72.3
Operation and Maintenance	14.9	14.0
Fixed Charges	7.8	7.3
Attendance and Health	1.7	1.6
Transportation	0.7	1.1
Other	—	1.0

If the opportunity for greater rationalization of expenditures has been missed in recent years, it is probable that the failure to get more flexibility into decision-making processes soon will be even more costly in opportunities lost. In many communities high rates of classroom completion in recent years have very nearly caught up with the classroom demand. The decline in birth rates since 1957 indicates that more communities soon will meet the demand for classrooms. Under this new condition, will resources continue to be applied in the same proportion as was dictated by formula in the years of high construction? Should they be? Will electronic equipment replace construction in capital budgets? If so, should it?

Garms also pointed out that "in only seven of fourteen big city school systems studied did principals participate in the budget process, and then not in roles of central importance.[38] Yet it is only by building on the estimates of administrators directly responsible for overseeing production that budgets can be constructed which approximate the point of optimum return to all internal allocations of the organization's resources and to the external allocation of resources between the organization and the rest of the community. In the case of school systems, this means that school principals must be the ultimate source of information on what it will cost the system to accomplish its objectives – objectives now stated in meaningful units of performance. And it is from the principals, presumably, that the best estimate of resources required for alternative or slightly modified objectives can come.

It is difficult to suppose that any new format for planning and budgeting will suddenly produce a condition under which school principals would be granted autonomy to determine the mix of resources to be employed in their respective schools and to determine the total of resources required to accomplish the objectives assigned them. At this point, however, some claim can be made for the virtue of adherence to form even without substance. It is possible for a change in *format* of budgets and concentration on the *end* results of a budget (i.e., the work performed) to lead to greater appreciation of means to that end. There have been a few articles in the literature on program and performance budgeting which indicate some historical precedence for this possibility. A brief article by T. W. Fletcher in *Public Management* reports that, in San Diego, California, at least, years of commitment to the more superficial aspects of performance budgeting by the city government resulted eventually in an awareness of the desirability of greater autonomy for department heads.[39]

It should also be noted that greater autonomy for principals will not necessarily mean less centralization in any important sense. It was recently pointed out to this writer that in a school system with an effective PPBS, a school principal will have greater liberty to determine the processes of education in his building, but the superintendency will have much more information than otherwise on the inputs and outputs of that building, and therefore, better information on which to fire or promote. Under this condition, it might be more correct to say that principals are more autonomous in the short run, but less autonomous in the long run.

PPBS *and the Peculiarities of Educational Administration*

It is not clear whether management is one trade or profession, two, or many. It may be that making decisions is essentially the same job whether it is connected with running a hospital, school, steel mill, university, or regiment. It may be that it is a very different job in each case. Or it may be that running schools or universities is one job, and running all the other organizations is another job. And, of course, there is the next logical question of whether there is one calling of educational management, two, or more. It may be that running a university is pretty nearly the same job as running a public school, and it may be that it is not. However we isolate or group educational management, the fact remains that this calling has developed norms, traditions, and procedures that set it apart. This development, in isolation, of a very large and powerful group of administrators, raises some doubts about the probability of management procedures that work elsewhere proving successful in the hands of educational administrators. It is possible that there is not much difference between educational administrators and other managers, but that their job is a very different one. Perhaps they either have or can soon acquire the skills and attitudes necessary to apply management procedures developed in other fields, but what they have to do is so different that these procedures will be only of marginal value.

One thing is certain, PPBS is dependent upon sophisticated supportive analysis if it is to realize its full potential. Cost-benefit analysis will presumably be the form of most such supportive studies. Cost-benefit analyses may be just as difficult in some other fields as they are in education, but education is one of the fields where they are very difficult. In any case, the future of PPBS as a powerful tool in educational decision-making depends on the development of satisfactory (or satisfying) methods of cost-benefit analysis in education at least, and perhaps also in other areas of social welfare. Very likely cost-benefit analysis will provide important quantities of information about some kinds of education, about educational operations of certain scale, and about educational operations over certain periods of time.

On the other hand, it is doubtful that cost-benefit analysis can be used on vast projects that disrupt the antecedent solution. So cost-benefit analysis cannot be expected to provide the big answers to planning problems.[40]

Whether or not this is a serious limitation of PPBS and its supportive analysis will depend upon the types of returns one is expecting from educational investments.

PPBS usually emphasizes detailed planning of programs over four to eight years and attempts to integrate these operational programs into more general planning of nine to twenty years. This is not planning in heroic dimensions, perhaps, but it is planning of type and scope that might be very helpful to rich nations facing such tasks as changing to an important degree the educational experience of some millions of urban, unskilled, economically ineffective people. It is no very damning indictment to say that our cost-benefit analysis techniques do not tell us much about the ultimate effect of the programs used, provided that they do help to demonstrate what effect those programs are having in the short-run in making those people economically effective, and provided they also demonstrate the cost of those programs and of some possible alternatives. It is one of the nice things about planning for rich countries that, since most people are probably educated beyond the requirements of their callings already, it is not usually necessary to justify education expenditures as contributing to national economic growth.

An Inherent Danger in Buying a "System"

To the attempts above to emphasize the conventional and stylized character of some aspects of PPBS, it should be added that PPBS even suggests specific age groups, institutions, political orientations and personalities. Anything less than caution in a commitment to its implementation may mean the failure to evaluate properly conceptual and technical developments from many sources and with varying styles of expression and format.

If the acceptance of PPBS is to mean the exposure of existing management procedures to critiques incorporating new and relevant concepts from whatever source, it will have one effect. If the acceptance of PPBS is to mean that an organization's management will be so sensitively attuned to information and advice from certain channels that others are effectively closed, it will have quite a different effect. The literature associated with PPBS is not inclusive of all efforts to rationalize educational choices.

Hector Correa's article "Optimum Choice Between General and Vocational Education" is only one example of a fine piece of writing on rational decision-making that in approach and style is immediately identifiable as outside the body of literature suggested by PPBS.[41] It has both the advantage and disadvantage of a model abstracted from institutional peculiarities. The immediate-operation emphasis in PPBS, particularly as applied to some aspects of research, may not be an unmitigated virtue.

4. The Possible Inevitability of PPBS in Urban or Metropolitan School Systems

In North America in the mid-1960's, many supporters of public education, even many school administrators and teachers, have come to regard urban educational systems as intolerable institutions, and are loath to commit their own offspring to them. The most sanguine of urban educators do not see in recent special programs any promise of rapid improvement. There is in this situation more than a suggestion that educational planning which does not incorporate demographic, employment, and residential planning is futile. Recent efforts at input-output analyses of urban educational systems[42] plus the far more numerous studies of other types attempting to specify the determinants of school outcomers[43] have produced almost no evidence that educational inputs (as measured) systematically affect student achievement or other aspects of measurable behavior. Similarly, such intensive and systematic surveys as that recently completed by James S. Coleman[44] indicate that pouring more money into Negro schools and other underprivileged schools will likely accomplish little or nothing in the way of effectively urbanizing the poor and ignorant. It must be concluded then, that within the usual limits of per-pupil expenditure, variations do not noticably affect the ordinary indexes of school outputs. Or, to speak more cautiously, it is not easy to show the contribution of expenditures to student achievement.

There is no doubt that some new approaches to the collecting and recording of information are required if systems analysis is to be exploited effectively as an aid to decision making concerning public expenditures for education. Data gathered for the express purpose of facilitating systems analyses will probably be far more helpful to the rationalization of public expenditures than the data usually available second hand and collected for other administrative purposes.

However, improved data and more sophisticated types of educational systems analyses may be of very limited advantage in the accomplishment of changes of the type and scope required to ameliorate the conditions of urban life. What is required, apparently, is the commitment of large expenditures to programs for urban human resources development that will incorporate the activities of several agencies of government: local government, and local agencies of state and federal government.

For better or for worse, urban educational decisions will remain for the foreseeable future largely the responsibility of urban school systems. The basic planning document for those systems will presumably remain the system budget. The increased centralization associated with present technological trends will presumably push a larger portion of effective educational decision making into the central offices of urban school systems. On the other hand, however, program administrators (of urban human resources development programs) may have authority to transfer funds within the program during budget execution in order to attain their assigned objectives. This means in effect at the time that urban school systems are becoming more centralized, there is a good case for diminishing their autonomy as agents serving urban human resources development.

In the case of state and national decisions for programs to change the conditions of urban life, the argument in favour of a degree of decentralization is clear, even though it becomes increasingly feasible to make more decisions at higher than urban levels. The concept of budgeting as the description of accomplishments, with its implications of authority for program administrators to transfer resources within the program, means that there must be authority for such transfers at the urban level. Urban school system administrators with unique access to certain kinds of information bearing upon the conditions of the urban population may claim a legitimate role in the final distribution of state and federal program funds. The general point is that local school system decision makers may justify an increasing role in decisions for the use of state and federal funds at the same time that planning for urban expenditures bearing on human resources development will likely become the business of a metropolitan agency of which the school system will be only a part.

Depending upon the characteristics that programs for urban human resource development assume in the political and social context of the late 1960's, the role of PPBS in education may be determined less by its unique suitability to the peculiarities of educational management problems than by developments in other sectors of public management.[45] In this case the problem for educational decision makers is less one of evaluating PPBS as a management tool than one of demonstrating the inputs and outputs of their institutions in units understandable to their counterparts in other sectors of public management.

References

1. *Review of Economics and Statistics* (45), May, 1963, p. 113. For a politically biased but informative commentary on budget balancing as a political issue see SEYMOUR E. HARRIS, *The Economics of the Political Parties*, Chapters, 15, 16, (New York: Macmillan Co., 1962.)

2. For one of the more concise statements to this effect, see DAVID RICARDO, *The Principles of Political Economy and Taxation*, Chapter VIII, "On Taxes," (London: J. M. Dent & Sons Ltd., 1962), pp. 94-97.

3. JESSE BURKHEAD, "The Balanced Budget," *The Quarterly Journal of Economics* (68), 1954, pp. 200-201.

4. ALFRED MARSHALL, *Principles of Economics*, 8th Edition (London: Macmillan Co. 1925), p. 216.

5. Ibid., p. 814 (appendix).

6. C. F. BASTABLE, *Public Finance*, 3rd edition (originally published 1892, New York: Macmillan & Co. Ltd., 1937), p. 670.

7. BASTABLE, p. 670.

8. Ibid., pp. 670-671.

9. HUGH DALTON, *Principles of Public Finance*, 10th Revised Edition (London: Len. Rutledge & Sons, Ltd., 1939), p. 19.

10. JERRY MINER, "The Relationship of Educational and Economic Planning," (Syracuse University, 1966, mimeo).

11. The dilemma that specialization presented to SMITH is well analyzed by E. G. WEST, "Adam Smith's Two Views on the Division of Labour," *Economica*, (XXXVI), February 1964, pp. 23-32.

12. *Economica*, XIX (Santiago, Chile, 1961), pp. 34-60.

13. Ibid.

14. JOHN STUART MILL, *Principles of Political Economy*, ed. W. J. ASHLEY (New York: AUGUSTUS M. KELLEY, 1909), p. 47.

15. HENRY GEORGE, *Progress and Poverty*, 50th Anniversary Edition (New York: Robt. Scholkenbach Foundation, 1950), particularly pp. 39, 307.

16. MARSHALL, pp. 205, 206, 216, 618, et al.

17. SOLOMON FABRICANT, *Employment in Manufacturing 1899-1939* (New York: National Bureau of Economic Research, 1942).

18. Particularly: MOSES ABRAMOWITZ, *Resources and Output Trends in the U.S. Since 1870*, (New York: National Bureau of Economic Research, 1956). JOHN KENDRICK, *Productivity Trends: Capital and Labor* (New York: National Bureau of Economic Research, 1956).

    ROBERT SOLOW, "Technical Change and the Aggregate Production Function," *Review of Economics and Statistics*, XXXIX (August 1957), pp. 312-20.

19. GARY BECKER, "Under Investment in College Education," *American Economic Review*, (May, 1960), pp. 346-59, and "Investment in Human Capital, A Theoretical Ananlysis, " *Journal of Political Economy*, LXX (October 1962, suppl.), pp. 9-50.

20. See THEODORE SCHULTZ, *The Economic Value of Education* (New York: Columbia University Press, 1963). This essay contains a concise summary of most of the ideas on the economics of education that the author has frequently made in his other writings.

21. *Survey of Education Finance 1962* (Ottawa, Queen's Printer, 1963), p. 9. Estimates through 1965.

References

22. U.S. Office of Education figures quoted in "*The Economics of Education*," Morgan Guaranty Survey, Nov. 1966.

23. C. A. ANDERSON, M. J. BOWMAN, "Theoretical Considerations in Educational Planning," *Educational Planning*, ed. Don Adams (Syracuse: Syracuse University Press. 1964), p. 9.

24. This is not to imply that in the abovementioned article BOWMAN and ANDERSON did not emphasize that "a continuing planning process with operational relevance will entail continuous feedbacks of experience, including experience in the implementation . . . of prior plans." p.6.

25. HARRY WILLIAMS, *Planning for Effective Resource Allocation in Universities* (American Council on Education, Washington, D.C.), 1966.

26. WERNER HIRSH, *Integrating Views of Federal Program Budgeting*, Memorandum RM-4799-RC (Rand Corporation, Santa Monica, Cal. December 1965), p.7.

27. JESSE BURKHEAD, "The Theory and Application of Program Budgeting to Education." Paper delivered before National Education Association, April 6, 1965, p.3. Reprinted slightly revised, J. BURKHEAD, T. FOX, J. HOLLAND, *Input-Output Relationships in Large City High Schools* (Syracuse: Syracuse University Press, forthcoming, 1967) Chapter VI.

28. FREDRICK MOSHER, *Program Budgeting, Theory and Practice* (New York: American Book-Stratford Press Inc. 1954), particularly pp. 99-105.

29. ROBERT J. MASSEY, Lt. Cmdr. U.S.N. "Program Packages and the Program Budget in the Department of Defense," *Public Administration Review* (23) March, 1963, p. 32.

30. BURKHEAD, "The Theory and Application of Program Budgeting." p. 7.

31. KJELL EIDE, "Organization of Educational Planning," *Educational Planning*, p. 71.

32. These caveats, paraphrased and used out of context, are borrowed from statements made by THOMAS FOX, Pennsylvania State University, at a recent informal seminar of some professors of education and civil servants interested in the feasibility of a program-budgeting approach to the allocation of resources for education in Ontario.

33. Actually, PERT (Program Evaluation and Revision Techniques) and other formalized project control systems did not incorporate all the concepts implied by PPBS, but the latter can be identified as a direct descendant of those systems, about which a great deal of specialized literature has been produced. See, for example, PERT, *A New Management Planning and Control Technique* (American Management Association, 1962).

34. Note these two excerpts from statements by Ontario Provincial Treasurer, CHARLES MACNAUGHTON, before the Provincial Assembly, February 15, 1967:

    "These improvements (developments of a program format for certain budget estimates) represent part of a broad and far-reaching effort to revise government financial management to focus on the purposes of government expenditures rather than on the objects of expenditures . . . The Department of Health has been chosen as the pilot project for this new system and the staffs of this department and of the Treasury Board are now studying and testing the feasibility of these techniques. I am sure that members will appreciate the difficulty in achieving fundamental changes such as these within an organization as large and diverse as the Government of Ontario. These changes in management practice and technique and program administration are intertwined with changes to the estimates presented to the House. Until recommendations on program budgeting have been more fully considered and tested, I believe it would be premature to alter the format of the estimates to reflect program budgeting."

35. "*A Program Budget Research Proposal*" (Dade County Board of Public Instruction, Miami, Florida, Nov. 1966). Submitted to the U.S. Commission of Education.

36. WALTER GARMS, " The Financial Characteristics and the Problems of Large City Districts," *Education Administration Quarterly* (III), Winter, 1967, p. 18.

37. Ibid., p. 19.

38. *Ibid.*, p. 18.

39. T. W. FLETCHER, "A New Look at Budgeting," *Public Management* (46), February 1964, pp. 26-29.

40. JOHN STUART MACDONALD, "Benefit-Cost Analysis of Social Welfare Programs." (Joint center for Urban Studies of M.I.T. and Harvard University, mimeo. paper delivered at AEA and IRRA, 18th December, 1964, Chicago). p. 19.

41. HECTOR CORREA, "Optimum Choice Between General and Vocational Education," *Kyklos* (18), 1965, pp. 104-114.

42. J. BURKHEAD, T. FOX, J. HOLLAND, *Input-Output Relationship in Large City High Schools* (Syracuse: Syracuse University Press, forthcoming, Spring 1967), for the results of input-output analyses of high school systems in Chicago and Atlanta.

43. J. ALAN THOMAS, "Administrative Rationality and the Productivity of School Systems," University of Chicago, Midwest Administrative Center, 1964 (mimeographed). HERBERT KIESLING, "Measuring a Local Government Service: A Study of Efficiency of School Districts in New York State (unpublished Ph.D. dissertation, Department of Economics, Harvard University, 1965.)

44. JAMES S. COLEMAN *et al.*, *Equality of Educational Opportunity* (Washington: U.S. Government Printing Office, 1966).

45. Note, for example, the recommendations for budget reform in the *Report of the Royal Commission on Government Organization*, J. GRANT GLASSCO, Chairman (Ottawa: Queen's Printer, 1962); particularly Vol. 1, pp. 99, 103, 105.

Planning Education for Social Objectives

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Instead of trying by example or otherwise to answer directly the question "How can education be planned to meet social objectives?" I prefer first to worry over its meaning. I concern myself with the definition of two of the important words in the title, *education* and *social* (particularly the latter) and what different meanings might imply for educational planning. In so doing, more attention naturally is given to problems involved in determining educational targets than to problems of organization or implementation associated with the planning process.

The narrow definition of education inferred from common usage simply as "going to school and learning something" is adequate for our purposes. Yet it must be remembered that education as one of various social institutions and processes, has certain peculiar characteristics inhibiting its analysis:

1. Formal education has evolved as a gradual consequence of economic, political-military and religious needs. Thus, historically, education has been an institution operated for very limited and inherently conservative ends. By contrast, modern educational systems constitute attempts to promote vast social and cultural changes beyond the purely educational innovations themselves.
2. Education is a composite of skills, techniques, and value systems many of which have long-range rather than immediate consequences. Moreover, the likelihood of the school-learned activities being repeated in the environment depends on a number of factors, including the opportunities for engaging in the new activities and the rewards for doing so.
3. Education develops a "culture" of its own which may interfere with the official educational and other objectives. This culture is a composite of emphasis on transmission of skills, community service, personality development, scholarship, the scholarly disciplines as ends in themselves, research, etc.
4. Education is marked by a complexity of levels and programs which obstruct analysis.[1]

The term *social* must also be treated with care. Much of contemporary literature on "development" (or even on "economic development") speaks of the "social" and "economic" factors involved. There is, however, not only a vagueness in the boundaries of the term *social* but also confusion as to when a particular activity is "economic" and when it is "social." Economists, for example, frequently seem to like to add the word social to their discussion of economic development merely to avoid the accusation of being "too narrow" or "too material." Before attempting to analyze the problems of planning education for social objectives, then, it is first necessary to examine some of the possible meanings of *social*.

In a UNESCO sponsored symposium on the topic, the term social development was defined indirectly and fractionally as follows:

Social change resulting from industrialization and impact of scientific and technological advance . . . is implicit in what seems to be the dominant notion of social development[2]

As the report of this symposium further concluded, this notion underlies such concepts as the "traditional," "modern," "static," and "preindustrial," society. Thus, Marxism with its emphasis on the primacy of economic-technological factors is an example of one theory (some might say the only extant theory) of social development. Yet the view of social development as dependent on industrialization and technological advance has also been criticized as peculiarly western in outlook. In this same symposium some participants agreed that social development would be viewed as the "increasing moralization of human behavior and thought" (thus placing values as the central consideration). A problem arises, of course, in trying to demonstrate *improvement* in values, e.g., increasing moralization. And the question may be raised as to whether values are rational, verifiable, or similar among different social groups.

A somewhat different definition of social development may be found in a study for the U.S. Agency for International Development in which I was involved some time ago. Here social development was viewed as that kind of social change which is marked by "emphasis on planning mechanisms to achieve desired types of complexity." Specifically in the process:

1. Specialization of tasks and roles becomes more complex;
2. Recruitment to roles is largely achievement-oriented;
3. Criteria of evaluating performance are rational (relatable to specific demonstrable goals);
4. Conscious and strategically contributed innovations are required to continue the process of development toward some goal;
5. Decision-making is pyramidal (there are various levels of responsibility, with primary co-ordinating decisions made at the topmost level);
6. There is anticipation of normal problems of resistance, co-ordination, etc.[3]

In an interesting exploratory study, Raoul Naroll[4] constructed an index of social development without precisely defining the term. To Naroll social development includes the basic concepts of social evolution and urbanization. He selected two indicators of social evolution (a craft specialization indicator, and an organizational ramification indicator), and an indicator of urbanization. These indicators were used in the index. Naroll calculated indices for thirty ethnic groups but did not attempt to apply his method to any large scale, complex societies.

In these latter two studies economic development is important to the notion of social development, yet problems of social development cannot always be reduced to problems of economic development. Treated in this fashion "social" includes "economic" and the phrase "economic and social factors" commonly found in the literature has little meaning except as it may reflect different analytic approaches.

The UN Research Institute for Social Development defines social as ". . . everything that refers directly to the conditions in which people live"[5] – a definition hardly useful for analytical purposes. In much of the UN literature social is taken to mean social welfare, e.g., public health, housing, and education. Yet as the United Nations Bureau of Social Affairs has stated, "the separation between the social and the economic is often an artifact of academic analysis and Government departmentalization." In the latter sense, economic may thus be distinguished from social only in terms of "policy instruments" with instruments of economic policy largely consisting of measures to raise national production and to increase consumption. In the governmental classification sense social planning then becomes planning for health services, consumer goods, and education services. This approach is helpful, for as economists have pointed out there is nothing inherently "social" about public health, housing and education since all involve questions of allocation of scarce resources and hence are subject to economic analysis.[6]

However, in the literature on development and modernization not only has economic been included in the term "social," at times the reverse has been true. If development economics is taken to include: (1) any question involving the problem of resource allocation, and (2) any aspect of the process of raising levels of living involving resource allocation, then it would seem that "social aspects of development" could be considered as part of the economics of development.

This discussion should not obscure the fact that development is a single, unified process in which the components of society are closely interrelated. To a degree, at least, development means that the whole structure of society is changed – new institutions, new values, and new patterns of integration are forthcoming. However, for *sake of analysis*, legitimate distinctions can be made between economic, political, etc. Thus some economists have suggested that what we have is not social and economic aspects of development, but economic and non-economic analyses of development.

In linking education to other social factors in development we need to define clearly our use of *social*. If we are trying to determine the contribution of education to the "non-economic factors" of development we need to be explicit as to which factors we are concerned with. If we are considering some general social goal such as "level of living," the problem of disaggregating a general index into measurable components may be important. Or if our concern is with some less tangible goal such as a "higher quality of civilization," even the possibility of making education decisions by plan may be questioned. Some examples which link education to a defined social objective can illustrate the problems that arise and identify the questions that need answering. The discussion that follows is focussed largely on the macro or national level. Relatively little attention is given to educational planning at the community or individual school level.

Education as its Own End

During the past decade or so, as attention to planned change has grown in both developed and underdeveloped nations, many professions, particularly perhaps education and medicine, have been disturbed that their fields were seen as means rather than as ends. In recent years the educator has frequently accused the economist and the planner of "dehumanizing education" or viewing schools as "factories" for some material end. Thus the argument goes that "human beings should neither be cured nor educated for the economic benefit this will confer on them or on society."[7]

On the one hand this view is salutary in the face of lingering prejudice in many nations against the social services. Since an increase in (or "production of") more services may mean shortages in the production commodities, it is no doubt dangerous, at least in developing societies, to place heavy concentration on services. This still doesn't mean, as W. Arthur Lewis has pointed out, that services need to defend themselves solely on the ground that they represent "investment" rather than "consumption."[8]

Frequently when educators speak of education as its own end, it is questionable whether they are not really referring to education as means. For example, if the reasoning of the advocates of universal literacy or universal primary schooling is pursued, it may be learned that these are seen as necessary for a desirable level of citizenship or some other general end. Even if universal education is spoken of as a "human right" it may be actually considered as a means to a greater end such as happiness or "inner satisfaction."

The phrase "educating each person to the limits of his own potential" perhaps more closely represents education as its own end. Since, however, long debate could be carried on as to the meaning and measurement of either "educating" or "potential," this phrase would be relatively meaningless for the planner.

Education as its own social end could imply merely the satisfaction of curiosity. Individuals and social groups may seek education because they are curious. Under such conditions, planning becomes fulfillment of demand. The problems become essentially technical, the measurement of demand and allocation of sufficient resources.

Viewing education as its own end sometimes appears merely to mean that an arbitrary education level is sought, e.g., each child ought to have six years of education, etc. In such a case the planning problem becomes one of selecting the "best" means to that end. (Best in this context usually would be defined as most efficient in terms of time and cost, although it could be defined in an infinite number of ways depending on the value orientation of the goal setters.) Given the availability of adequate resources this becomes a technical problem which to a large extent may be laid at the door of the educators. What is the most efficient (or most pleasant, etc.) way of educating children, youth, or adults to the given level? Or to the fulfillment of their curiosity to the limits of their learning potential?

Yet for several reasons the "education for its own end" argument is, if not fallacious, unsatisfactory. First, as has already been stated, there is the sticky problem of separating ends and means. Further, if education is viewed as a social end in itself then its value cannot be compared with any other social activity which is also treated as an end, unless there is an agreed hierarchy of ends.

Moreover, the hard fact remains that at the present time probably not over 50 per cent of the world's children ever see the inside of a school and only a small fraction of these complete a primary school education. At least in most of the world, national choices are being made on one ground or another as to which children shall be educated. They will continue to be so made in the foreseeable future. Therefore, the *only* realistic goal is to formulate and implement educational policies toward measurable societal objectives.

Being satisfied that for all practical purposes education must be viewed as a means for some social end, let us examine ways in which the amount and kind of needed education might be determined.

Education for Cultural Advancement

Certainly there is a sense in which it is possible to talk about social objectives in terms of what might be called cultural advancement. Ancient China or India, for example, by some norms had highly advanced art, literature, even codes of government. Education with its strong literary emphasis reinforced the aesthetic component of Eastern culture admirably.

Perhaps education in most places throughout most of history has been seen as an instrument to reinforce the cultural advancement of the few and at the same time act as an obstacle to those structural changes necessary for what is now termed development. Because of what appears to be the almost natural predilections of elite groups, education has been placed in such a role with or without efforts of planning. But this pattern has been largely rejected by contemporary peoples whose values run explicitly in favour of economic development and social justice.

It is not, of course, being suggested that achievement of material targets alone provides full satisfaction. Cultural advancement sought for a total population and not merely for a privileged group is a legitimate goal for modern society. Yet to discuss the implications of a national program which pushes non-material orientation "culture" (e.g., asceticism) to great length is largely academic. While it may always have been true that "the quest for heaven is always vulnerable to the quest for bread and vice versa" the former condition is particularly apparent in the contemporary world.

Education for Societal Development

Social development was defined earlier in terms of the development of greater levels of social differentiation. That is, the functions which all societies must constantly perform are accomplished by social entities which become more and more specialized as a society develops. If social development is viewed as an ordered differentiation of parts in a social system, this process could be examined by studying (1) the emergence of new roles or the transformation of existing roles, and (2) the alterations in relation between roles, groups and other subsystems of a society. Since, however, these roles are linked to larger social processes and institutions some scholars avoid studying them directly. Thus social change becomes described, for example, in terms of alterations in political, economic institutions, or in the process of urbanization. Steps preliminary to the actual planning of education to encourage or support the desired kind and level of social change would then include (1) the development of measures for the desired change, and (2) some means of determining the contribution of educational output (which presupposes accurate measurement) to specific social changes. The usual procedure here is to run correlations cross-nationally (preferably over time) between economic, political and demographic variables and levels of educational attainment, e.g., literacy, graduates per unit population. Studies of this nature (Ginsberg, Harbison and Myers, Russett, *et al.*) have been part of development literature for some time and do not need to be subjected to analysis here.

The important point, however, is that such empirical browsings only attempt to measure superficial external attributes, e.g., productivity, population density, consumption patterns. Most particularly, the indicators of educational output reflect assumptions about the educational process that most educators are unwilling to make.

Some of these studies, by using measurable indicators of the various social factors involved, developed empirical stages of development or as in the case of Harbison and Myers stages of "Human Resource Development." Through such a procedure, given certain assumptions, it is possible to get a picture of what the more developed nations look like and make an assessment of position and progress among the least developed nations. Thus, broad planning strategy can be formulated.

The value of such empirical models of stages of development for any refined attempt at planning is quite limited. The construction of such models involves among other shortcomings making arbitrary decisions regarding the cutting points between groups of development indicators. Choosing different cutting points can substantially change the characteristics of each group – and hence alter any derived strategy for planned change. However, the many limitations of these theoretical/empirical studies or "fishing expeditions" are well known and need not be repeated here.

The comparison of a hodge-podge of educational and other social variables as found in these studies reminds one of a story found in Dickens' Pickwick Papers. In a scene in an inn, Editor Pott urges Pickwick's young friends to read a series of articles that appeared in his paper in the form of a review of Chinese metaphysics. "An abstruse subject," says Pickwick. "Very," says Pott, "but my writer crammed for it . . . he read up for the subject at my desire, in the *Encyclopedia Britannica*." "I was not aware that this valuable work carried anything on Chinese metaphysics," responds Pickwick. "He read, sir," rejoins Pott, looking round with a smile of intellectual superiority, "he read for metaphysics under the letter M and for China under the letter C, and combined his information, sir."

Instead of defining social development as the total process of development, it can be viewed in more limited social welfare terms. This has been the approach of the United Nations Research Institute for Social Development. The institute was created to study "the methods of integrating social aims and social programs into overall development planning." In performing this task it has given attention to identifying, quantifying and comparing social aims. A main thrust of its efforts has been in the development of a "level of living" index. Level of living is defined as the level of satisfaction of the needs of the population assured by the flow of goods and services enjoyed in a unit of time. Only those needs which are measurable are included and those aspects of the "good life" less amenable to measurement (national prestige, happy family life, etc.) are not covered.

An index of level of living in a nation enables cross-national comparisons and permits measurement of the degree to which social aims are being achieved. The difficult technical problems of developing such an index are recognized by the institute. In addition to the usual problems of measuring the variables involved, a particularly vexing problem is that of weighting which requires differentiation among the social aims in terms of their relative values. Presumably, then, the weighting arrangement might vary from nation to nation and from one "historical period" to another.

Education is one of the components of the index (the others are health, shelter, nutrition, etc.). The educational level of quality of a population is inferred from such measures as school output ratio and pupil teacher ratio. A particular educational level could then become a social goal in itself or a support for other components of the index. The advantages, therefore, of the Level of Living index are that it attempts to consider fundamental human goals, quantify these, and allow for international comparisons. Moreover, unlike such indices as GNP per capita, the index can be disaggregated in order to understand better the interrelations of component societal factors. Further, for the indicators of the various components an ambitious, if romantic, attempt is made to establish, in the fields of physical and cultural needs, critical points of minimum and full satisfaction. That this approach falls short of its purposes, for technical if not conceptual reasons, is painfully clear but a subject outside the scope of this paper.

Educating for Social Roles

One way of trying to link education to any social objective is to use the planning of education for production objectives as an analogue. Manpower planning has been employed as a means of reaching the objective of higher levels of productivity with occupational roles defined in terms of levels of education or amount of knowledge and skill. Given accurate interpretation of what number and kind of roles are needed, manpower planning becomes accurate to the extent that we can (1) measure what the job demands, (2) measure how various kinds and amounts of schooling alter occupational behavior.

The difficulties of accurate manpower forecasting have been well documented as have the dangers of assuming any precise fit between formal education and occupational roles.[9] Yet in spite of the many shortcomings to this approach most planners recognize its utility at least in providing crude guidelines or minimal targets for educational growth.

One way of viewing educational planning for social objectives is to view it as a conceptual extension of planning for production roles. The problem then becomes one of defining educational equivalents to social (other than narrowly occupational) roles. (It should be pointed out of course that occupations are not merely economic phenomena. On the one hand they reflect a large number of antecedent technological, educational changes and on the other hand imply limitation on social participation). At this time the problem becomes clearly methodological – given the social goals, how can the associated social roles be identified, and then how can the educational and training requirements of social roles be prescribed?[10]

Is it feasible to translate social goals into specification of roles? For example, in a particular context can the number and kind of political leaders be determined? Or the desired political role of citizens? Or the "health role"? Or "leisure role"? How can the nature of such roles be specified? How can their educational links be determined? And, what are the limits of the contribution of the school to the performance of non-labor-market roles? What is the importance of self-instruction or non-institutionalized education in preparation for these roles? Given the fact that there have been only a limited number of attempts to specify educational requirements for non-production roles, does this approach have guidance for the researcher today and utility for the planner tomorrow?

The broader sociological concept which envelops the teaching or learning of roles and statuses is *socialization*. Thus in the broadest sense socialization prepares for the most general of all roles, "man," or the more particular "image of man" held in a given society. One's "general education" presumably contributes to this role. When learning relates partly to such a broad philosophic image and partly to observable roles visible in institutions and organizations the term "special education" is sometimes used. Finally when a highly specific role or status is the target the preparation may be called training. The unfortunate characteristic of educational planning when limited largely to manpower analyses is that it is limiting the definition of education to *training*.

If the concept of role is broad enough it may not only include political and citizenship roles but also "leisure" or "study for its own sake" if such roles are valued by the society. In a stable society (existing only as an ideal-type) the education and training needs for social roles would not vary from generation to generation. However, in periods of rapid social change generational social roles (and even social goals) may be in a state of flux. This is the reason, of course, why planning and systems of incentives are so necessary in dynamic societies.

As was indicated in the last section the sociological approach to the study of social change or development is usually through broad social institutions. The social role approach takes as its starting point the smallest social units, roles, and statuses. There is a very limited literature to help judge the fruitfulness of the latter approach. However, there seems to have been enough research to push this approach further.

The problem in the analyses of social roles is to reach the level of empirically observable and meaningful categories. For example, in addition to occupational roles one might form one separate group for those related to social class, another related to "face to face" groups such as the family. Particularly in the area of occupational roles and occupational socialization there exists a body of research to build upon. The occupational role of physician, for example, has been examined at length and its educational requisites specified. Some study has also been made of certain functional roles, e.g., leadership, executive. Little study, however, has yet been made of comparisons between occupations and between different stages of societal development in which occupations are performed.

Such study is, of course, immensely complicated by the fact that many roles are not learned in a single process but in a sequence of processes toward a target status. Social roles (and the goals from which they are derived) frequently overlap and are mutually dependent. Education for one role may also be education for another. However, if, as is the case with manpower planning, only the educational requirements of selected occupations are determined, given limited resources available for education, then the result could be that few resources would be available for education for a wide number of other roles, e.g., political leadership, citizenship, or parenthood. Moreover, unless the social goals are made explicit by careful definition of roles there is the danger that possible conflict between goals may not be recognized and decisions taken based on partial identification of goals may be ineffectual.

If the focus is on planning at the community rather than the national level there seems to be the most possibility of linking schooling to role requirements. At the community level the performance of many roles and the mutual dependence of roles can be most clearly observed. At the same time at this level the social constraints on the educational system are most precisely definable. Therefore, the professional educator is best able to make use of his expertise in maximizing the school's influence. Here widely accepted propositions of learning[11] can be translated into specific curricula and teaching methods. In this way the school's qualitative output is increased as defined by the prevailing social norms.

But the gap between the level of socialization and role theory and the operational demands of the educational planner is obviously great. Then how close are we to any macro social theory which might attempt to describe the kinds and rates of social change among contemporary societies? One of the greatest sins would be for those concerned with planned change to hide behind narrowly conceived administrative and accounting systems and pretend that such theory is not necessary.

Education for Social Equity and Social Justice

One of the most common criteria for allocation of educational services within a nation or some national sub-unit is social equity. Frequently equity is expressed in the goal of "equal educational opportunity." Unfortunately this expression as found in the literature is subject to much confusion. Several different definitions might be offered for it:[12]

1. Schooling sufficient to bring every child to a given standard;
2. Education sufficient to permit such persons to reach their own potential;
3. Continued opportunities for schooling so long as gains in learning per input of teaching match some agreed norm.

Social equity defined in input terms usually refers to allocation of educational services to insure uniform quantity and uniform quality of schooling. In these terms equity is a very politically defensible criterion. In both the underdeveloped and the developed nations governments with equalitarian leanings have begun to take steps to bring about parity in educational availability among regional areas and ethnic groupings. In such a case educational planning becomes an administrative exercise, operationally difficult but technically not particularly demanding.

In keeping with "social justice" or some such term attempts may be made to allocate educational services not in terms of parity but differentiated according to need. Thus compensatory or additional education is offered to culturally deprived children, or preferential treatment is given to members of minority groups for university entrance. In these cases education is being explicitly used to foster mobility.

Usually it has been argued by social theorists that the presence of universalistic and achievement-oriented criteria in formal education, such as recruitment and promotion by examination, makes it possible for those at lower social levels to advance. The use of particularistic criteria to increase the opportunities for those at the bottom is a somewhat new twist, practised interestingly enough in both capitalist and socialist democracies.

It has been suggested that educational planning designed to promote upward mobility among lower social classes or deprived ethnic groups must, in effect, provide a functional equivalent of having a middle class grandfather. (Sociologists claim that of two children of the same status level, the one with a grandfather of higher status is likely to improve his position.) Scholars have suggested that some of the same advantages can be provided by the injection of certain amounts and kinds of knowledge, rewards, models, financial assistance, etc. Indeed all of these ingredients are now present in the federally supported programs of compensatory education in the United States.

The educational planner who wishes to reduce socially based inequalities in educational attainment needs to know the various sources of inequality. In some of the developed nations there is substantial literature to draw upon regarding the educational experiences of various social class, occupational, and ethnic groups. Even though much of the existing research treats very limited population samples, it is increasingly possible to agree upon the significant extra school variables which impinge upon length of schooling and school success. It would be premature to suggest that such research has advanced to the stage where it would adequately support planning procedures. Continued efforts are necessary to relate, through techniques of multivariate analysis, the ways in which children and youth differ outside the school, e.g., in social origins, and how they differ inside the school, e.g., in academic behavior.[13]

Neither social equity in terms of uniformity of educational services nor social justice (and social inequity) in terms of differential allocation of educational services is necessarily consistent with development policies. Nor is either necessarily efficient; i.e., neither guarantees maximum effectiveness or minimum cost in the service of short term ends. Efficiency as maximization of production might well dictate encouragement for those groups already demonstrating the most capacity for education.

It is possible to conceive of these four ends – cultural advancement, societal development, social role (including occupational) preparation, and social equity – within a single framework for analysis and data gathering. Bertram Gross,[14] for example, has used a national economic accounting system as a starting point for the development of a wider concept of social accounting. As described by Gross this broader approach allows conceptually for the inclusion of social indicators for the more fundamental goals of man and thus allows the important questions to be asked about the place and prospects for man in the process of social change or in a period of abundance.

Such a social systems approach to national accounting forces the collection and analysis of data on a nation's educational capacities and in the area of the arts and humanities, as well as data on the state of the economy. Gross argues that social systems accounting supplies the concepts needed to: (1) structure information on the past and present; (2) formulate goals (desired future "system states" toward which commitments are made); and (3) establish criteria of evaluation. "Such system state designations will thereby provide the substantive content of problem defining and decision making, the informational content of communication processes, and the specific measures of social change and influence."[15]

Admittedly generations may be needed, even in the advanced nations, before social systems accounting can be refined conceptually and before better social indicators can be developed. But as the social accounting proponents tend to argue, "it is better to have imprecise answers to the right questions than precise answers to wrong questions." However, the problem of measurement can not easily be set aside for it is crucial to the planner. Focusing on education I shall now give brief attention to the difficulties of obtaining appropriate educational indicators for use in educational planning.

Measuring Educational Output

Ultimately the person concerned with planned educational change must also be concerned with the measurement of outcomes of educational programs. Even the more elaborate studies attempting to link education to developmental objectives have tended to use crude aggregated measures of educational output. Not only may questions be raised about what such measures really tell us, but the very process of social development is likely to demand increasingly specialized, differentiated, and higher quality capabilities requiring as inputs more differentiated teaching, curricula, and learning experiences.

Ideally, perhaps, what is needed are more precise and more variegated forms of achievement testing which can be linked with quantitative and qualitative expressions of human resource needs. Such measures of output would be equally useful whether the kind and level of capability were defined by demand, level of production, level of welfare, or anticipated specific social role.

But even in the absence of well developed instruments for directly measuring a variety of behavioral changes induced by schools, it is not necessary to limit our attention to such common indicators as graduates by academic level. It is possible to develop a set of indicators which together reflect all of the important elements of the educational system, thus allowing the comparison of various mixes of elements.

It is not my intention to elaborate here on the form such indicators might take. Elsewhere, as the result of a project sponsored by USAID in which I was engaged, two conceptually similar but operationally distinct measures of educational output were created. These were called the "pupil-hour" and the "pass-year" measures. The pupil-hour measure essentially made use of the number of pupils enrolled and the length of time spent in particular curricular (learning) categories. The pass-year measure, based on successful man-years spent in class, involves weighting by curriculum content and life expectancy.[16]

Such measures at least provide a clearer picture of the educational process in that they include parameters typically not taken into account by such standard educational measures as enrollments, graduates by level, etc. However, both are built on the tenuous assumptions that there is a fairly direct correspondence between what is "taught" and what is learned, and that identifiable cognitive learnings provide the most direct and important influence on later behavior. All that can be said with confidence is that at least the pass-year measure gives different results from the traditional educational indicators when related to the standard indicators of development, e.g., GNP per capita, electric power produced or consumed, urban population, etc.

Such measures may also assist in focusing studies on the educational system itself. The "logic" of educational growth may be better understood since these measures may be disaggregated to the different quantitative flows (pupils, teachers, administrators, etc.) in and out of the system. Insights may also be acquired into the way in which educational efforts affect a nation's total human capital – given an adequate measure of the latter. Finally, as a recent OECD publication has pointed out, "the existence of a quantitative model of the educational system will facilitate the search for quantitative expressions of 'social objectives' since various interpretations of such objectives (e.g., 'equalization of opportunity') can be worked out in terms of such a model."[17]

Summary

Regardless of whether we mean cultural advancement, equality of opportunity, social welfare or something much broader by the term "social," there is a timeliness to our topic. The education system's relevance to numerous societal needs and social groups is becoming more obvious. Education is being asked to carry more of society's burdens and to solve more of its problems. In contemporary times it is seen not only as an institution to teach skills to the young, but also to give individual or national prestige and even to provide solutions to minority and racial problems.

Thinking in terms of other than narrowly conceived production objectives doesn't necessarily imply a disrespect for, or even lack of faith in, manpower planning. Nor should it mean that professional educators view economists as ogres and see themselves as Florence Nightingales (an accusation of John Vaizey when reviewing in C. E. Beeby's *The Quality of Education*). Manpower planning is proving itself within certain prescribed limits, but to at least some persons committed to educational planning these limits are too confining. Without being romantic I think that scholars and professionals owe a debt to society greater than the identification of manpower targets.

References

1. DON ADAMS and JOSEPH P. FARRELL (eds.) *Educational and Social Development.* Center for Development Education, Syracuse University, mimeographed, 1966, Chapter 1.

2. RAYMOND ARON and BERT F. HOSELITZ (eds.), *Social Development.* (Paris; Mouton & Co., 1965), p. 15.

3. DON ADAMS and JOSEPH P. FARRELL, op. cit., p. 16.

4. RAOUL NAROLL, "A Preliminary Index of Social Development," *American Anthropologist*, 58 (4), 1956.

5. JAN DREWNOWSKI, *Social and Economic Factors in Development*, Report No. 3, UNRISD, Geneva, 1966.

6. Yet, of course, there are aspects of education and public health which cannot be subjected to economic analysis. For one thing, the determination of ends or goals is one sphere in which economists can claim no special skills.

7. But, as BENJAMIN HIGGINS has pointed out, "Educators should feel no compunction in treating the field of education as an industry for analytical purposes; the publishing industry after all, produces Bibles, poetry, and scientific books as well as comic books and pornography, and the entertainment industry produces Shakespeare as well as strip teases." BENJAMIN HIGGINS, "*Technical Assistance, Education and Economic Development.*" Mimeo., 1966.

8. ". . . If the question is whether to produce more education and public health, or more radios and bicycles, it is obvious that the commodities are superior to the services. The social services are desirable in their own right, as a form of consumption and do not need to be defended as 'investment' . . . This (that social services are seen as consumption) cannot be held against them; there is no general presumption in favour of investment rather than consumption. Such a presumption would be odd, since the purpose of production is consumption; an item of expenditure does not have to be an 'investment' in order to be justified." Even if Lewis oversimplifies the problem, the significant point is made that an economist, even within the rhetoric of his own disciplines, can find some justification for support of education—if not for its own end then at least for non-production ends.

9. See, for example, the chapter by C. ARNOLD ANDERSON and MARY JEAN BOWMAN in DON ADAMS (ed.), *Educational Planning*, Syracuse University, 1965.

10. Several of the ideas presented here on social roles have been borrowed from or stimulated by Professor KURT K. LUESCHER, Institute of Sociology, University of Berne, in an unpublished paper "*A Preliminary Evaluation of the Bearings of the Concept of Socialization for the Study of Modernization.*"

11. It is surprising, for example, how rarely in either the underdeveloped or developed nations the operation of the school is guided by such widely accepted propositions of learning as: 1) the schools should be associated with pleasure and profit; 2) the schools should be directed toward the creation of a systematic social context in which individuals are able to predict the behavior of others and rewards in general; 3) the operation of the schools should be directed toward the establishment of a long time perspective; 4) the operation of the schools should emphasize the presentation of models whom students may imitate. By focusing professional attention on state of the art, at least the quality if not the quantity of the school's social output may be raised.

12. DON ADAMS, op. cit., Chapter 1.

13. Such studies of course, can at best answer the question "what is." They cannot suggest the full potential of the school to effect change. But at least they may help discover which existing programs are better for whom – if there is agreement on the meaning of better.

14. BERTRAM M. GROSS, "The State of the Nation: Social Systems Accounting," in Raymond A. Bauer (ed.), *Social Indicators*, MIT Press, Cambridge, 1966.

15. Ibid., p. 162.

16. DON ADAMS and JOSEPH P. FARRELL, op. cit. These particular measures were developed by Professor KENNETH NEFF of Michigan State University and Professor DONALD SANDERS of Ohio State University.

17. *A Technical Evaluation of the First Stage of the Mediterranean Regional Project* Paris: OECD, 1966), p. 66. Other techniques can be employed in trying to understand better how educational systems change and develop. One of my graduate students, JOSEPH P. FARRELL, for example, has experimented with some success in the use of scalogram analysis in structural analysis of educational development. See DON ADAMS and JOSEPH P. FARRELL, op. cit.

The Training and Use of Educational Planning Personnel

Raymond F. Lyons

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The author is grateful to Dr. Philip H. Coombs, Director of the International Institute for Educational Planning for valuable comments which were taken into account in preparing this paper.

The popularity of educational planning has grown rapidly in the past decade, thanks to the greatly increased tempo of educational 'expansion' and change. It is now widely recognized that costly imbalances and waste in educational development can be avoided only by careful planning. Moreover, the case for wise planning becomes even stronger as countries increasingly encounter severe limitations on the resources available for education.

In response to the worldwide need for better knowledge and more experts in this new field, UNESCO established the International Institute for Educational Planning in Paris in 1963. In July of last year, as part of its study of training, IIEP convened a "Workshop on Training Educational Planning Personnel" attended by Directors of Educational Planning Training Institutions (the UNESCO Regional Centres and Governmental or University institutions). This paper summarizes some of the main conclusions reached by that Workshop, which was mainly concerned with the problems of helping the educational planning of countries in an early stage of development. The following is a selection of some of the tentative findings, which may also be relevant to highly developed countries such as Canada.

The questions we faced are: Who and how many need training in educational planning? To do what jobs? How can these training needs be met? How should the necessary training effort be organized? What should be the contents and methods of the courses? How should the participants be selected? What should be the materials? How should the projects be staffed? And last but equally important, how can institutional co-operation between training institutions improve the effectiveness of the whole effort? Let us examine briefly these questions.

Use of and Requirements for Educational Planning Personnel

In general, the personnel requirements are a function of the nature of the educational planning process itself, what roles various people must play within it, and the number of persons who must play these roles and/or train others to play them. This must be examined on a local, state (provincial), and national level, for each large world region, and at the international level.

The concept of the educational planning process should be flexible to allow for the great diversity among nations and even within them. Yet there is an essential core. Even where planning does not officially exist there are many examples of its practice. On the other hand, in certain countries where it does officially exist, paper plans have proved futile for lack of the necessary will or means to carry them out. In any event, a serious educational planning process, whatever its variations, requires the following "hard core" components:

a) Diagnosis and appraisal of the existing educational system, its performance and main problems;
b) Determination of basic policies and the setting of basic directives, priorities, and targets for their achievement including decisions on resource allocations to education and within education, in view of the need to integrate educational development with the nation's economic and social development;
c) Translation of overall targets into specific educational programs, projects and social development plans (usually with five year plans);
d) Implementation of plans, programs and projects by action at the central, regional, and local levels, supported by annual budgets and, in the case of developing countries, external assistance. Co-operation between public and private education and attention to non-formal as well as formal education are essential to this;
e) Evaluation and revision of plans in the light of achievements and new developments.

This rough sketch of the educational planning process suggests the types of personnel required to make it work and the kind of training they will need. A full-time planning unit is needed, staffed by personnel for whom planning is recognized as a career, a full-time job. It must enjoy extensive contact with those institutions responsible for other aspects of planning (the overall economic planning unit, whoever does manpower planning, the Prime Minister's Office, the Ministry of Finance, the Ministries or bodies responsible for non-formal training, adult education, etc.). It would seem desirable that the planning unit be located strategically within the national Ministry of Education and, in federal countries, at the State level, or wherever is the locus of responsibility, so that the planning becomes effective in action.

Such a unit must comprise a team of people with different types of competence, probably including the following:

a) A director of the unit, fully familiar with the practical problems of educational administration and development, with the statistical/technical procedures and principles of economic and educational planning, with educational finance, and with the practical realities and constraints of policy-making and decision-making. He should be capable of following, within the Administration, the necessary negotiations and discussions involved in drawing up, revising, implementing, and evaluating an educational plan. He is, in short, a staff officer, a "generalist" who knows both the technical/theoretical essentials of planning and its practical aspects, and is capable of orchestrating the work of the unit and harmonizing it with others.
b) A deputy director who should have the same staff officer role.
c) A professional statistician to collect data, analyse trends concerning pupils, teachers, buildings, books and equipment, prepare data concerning project development, etc.
d) An economist who can handle the tasks involved in costing and financing educational plans, including the necessary liaison with educational budget officers.
e) An architect or engineer able to deal with the design and location of school buildings and their efficient utilization.
f) One or more educational specialists responsible for following the work of the Ministry concerning the planning and improvement of the curricula, including teacher training.

In addition, each nation undertaking educational planning will require, in its overall economic planning agency, a highly trained person in educational or human resources planning. He (or she) should combine competence in educational planning with training as a labour economist or manpower analyst.

If planning is to be successful it is not enough to have an isolated group of specialists working at it; everyone playing a significant role in the educational system must become "planning-minded." This includes everyone from top decision-makers and professional operatives to officials in the Ministry of Education, officials in other Ministries, and educational administrators and inspectors at regional and local levels.

With these needs in view educational authorities will do well to estimate their long and medium-term needs for educational planning personnel and training, on the basis of the appropriate career and staffing concepts and allowing for wastage. It would also seem desirable that governments assign an appropriate place to programs developing an understanding of educational planning within their schemes of administrative training, teachers' training, and high-level meetings of Ministers and senior officials. In both cases, the prior need is for the training of qualified teachers of planning personnel. In developed countries the task of meeting these needs must inevitably fall on specialized national universities in co-operation with the appropriate international institutions such as the International Institute for Educational Planning.

Selection of Participants

The essential feature of selection should be close co-operation between the body responsible for training and the employer. The object of training is to enable people to think more clearly and function more effectively in their particular jobs and environments. Here our discussion is narrowed to the full-time "generalist" planner; other provisions will have to be made for the others mentioned above. The choice of the participant and his preparation for the course must be examined very closely in relation to the real work of educational planning in each country. Is it reasonable to assume that training must be viewed as part of advancement and improvement within existing administrative structures, rather than the creation of a new formal educational planning career?

One cannot overstate the importance of genuine and candid "face to face" evaluation of candidates between directors of training institutions and national authorities, to persuade them to send their best people for training. Characteristics for planning "staff officer" personnel, able to grasp and apply the theory and techniques of educational planning (whose course, according to the discussions of our Workshop, should last at least one year) should include the following:

a) A good basic education, a university degree in a related area (economics, sociology, statistics, pedagogy) and/or experience in education together with a keen mind.
b) Some competence in mathematics and statistics (no person who is afraid of numbers will make a good educational planner!).
c) Practical acquaintance with administration and, if possible, planning itself; such trainees generally are more aware of problems and more eager to pose questions and dig out the answers;
d) Evidence that the trainee would subsequently be involved in planning work where his training will be put to good use.

Content of Training Programs

Content and how it is taught are the heart of the matter. The objective of each training institute should be, it is suggested, to seek clarity about the tasks which the trainee will face in his work, help him (or her) to understand what the tasks are, provide him with the knowledge and methods with which to tackle them, and deepen the theoretical approaches which can enable him to see in perspective the formulation of educational policies and plans, their administrative connections, and problems and strategies of implementation.

To fulfil this aim, it is necessary to define the main subject areas from which the teaching will be drawn and the way in which the syllabus provides a useful approach to the planning process.

It was suggested at the Workshop by representatives of specialized university faculties and the directors of the UNESCO Regional Centres (Beirut, New Delhi, and Dakar) that teachers should be available to give instruction in each of the following subject areas:

a) Statistics and demography
b) Economics of educational development
c) Sociology of education
d) Public administration, political decision making and legislation
e) Theory and practice of education
f) Comparative education
g) Town and regional planning

It is possible to conceive the program as a series of separate unrelated subjects, or as a unified course with the subjects linked to a central theme and possibly involving team teaching. The above topics, taught in an applied problem-solving way, might be woven into a syllabus broadly following the sequence of the planning process itself. In this approach the course might be divided into the following five broad topics, each requiring a multi-disciplinary approach:

a) Introductory overview of the problems and nature of economic and social development and the contribution to them of economic and educational planning;
b) Methods and approaches to the quantitative and qualitative diagnosis of the existing educational system;
c) Methods and interrelationships involved in changing and expanding the existing educational system, within the limits of available finance;
d) Methods of plan evaluation and revision, including the role of research;
e) The administrative basis for educational planning (including implementation).

These topics contain a marked emphasis on the statistics and methodology involved in the work of an educational planning unit. They have received major emphasis in a number of training programs together with an "operational" bias in their teaching. But the Workshop discussion showed concern also for planning the improvement of the content and the "effectiveness" of education, and for the political process of planning.

How to include in the training courses the sociology of education, administrative problems, and town and regional planning needs particular study. In some courses, trainees have shown signs of mental indigestion if lectures are included on fundamental subjects unrelated to operational considerations. On the other hand, the appropriate theoretical treatment can only be achieved on the basis of a study of the real relationships in the countries and regions concerned.

Time Allocation Within the "Staff Officer" Course

It is suggested that while the subjects are taught separately and related systematically to the methods of the planning process, they should be so scheduled that the entire course moves as a unity. A program structure which calls for each class to meet for the same number of hours per week would not be appropriate. The scheduling of lectures, seminars, workshops and practical classes should reflect the particular requirements of the subject and its relevance to the central theme.

The allocation of time to analytical writing, supervised reading, and attendance at organized classes of various kinds must vary according to the background of participants. A number of proposals were made. The following presents a possible breakdown of "class" time between the main areas in the planning process in order to bring the trainee to a certain minimum level of competence and understanding in each area:

	%
a) Introductory materials on the economic, educational, social and political issues involved in national development (diagnosis)	15
b) Statistics of education as a tool of planning (remedial and applied)	15
c) The assessment and reform of the substance of education as part of planning	15
d) The preparation and implementation of educational plans in the light of demographic, economic, social and political factors; the network and supply of schools, demands and supply of teachers, books and equipment, finance; evaluation and revision	40
e) Administrative and management problems in the planning of education	15
	100

This involves a combination of remedial study, acquisition of basic knowledge (economics for educators and vice versa), familiarity with a body of theory and concepts of planning, development of habits of analytical thinking, and mastery of the skills of educational planning. The latter should, it is suggested, serve as the central theme of the course.

Teachers of Educational Planning

The object is to provide a highly sophisticated knowledge of the educational planning process and its links with economic and social development. The student should possess a common grounding in one or more of the social sciences, some mathematical ability, and experience in educational development problems. The training to be combined with a year at IIEP would normally involve at least two years' post-graduate training and research at a university in preparation for a doctorate.

Teaching Methods

It is necessary to provide a core of practical individual work, closely related to national requirements in educational planning, around which may be organized lectures, seminars, practical exercises, supervised reading, visits, etc. Thought should be given to the time allocated to different pedagogical methods within the course, as well as to the various methods themselves.

The balance of opinion suggested that within a one-year course, while individual work of various kinds would be continued throughout, there may be advantage in concentrating formal instruction in the first half, giving progressively greater emphasis to individual analytical work and supervised research in the second half. A satisfactory balance must be struck between supervised reading, preparation of work, formal lectures, and seminars. The consensus of the Workshop suggested that the formal program should take place five days a week (in the appropriate part of the course); that the most difficult technical sessions should be reserved for the morning, and that it might prove desirable not to exceed two afternoons of formal instruction each week.

There are four basic teaching methods, each with advantages and weaknesses. These are:

a) the lecture
b) the seminar
c) the "collective" practical exercise
d) individual supervised work

How can they be combined in a flexible way according to the nature of the material? The more abstract subjects lend themselves to lecture techniques, with the usual attendant dangers. Subjects such as statistical methods for educational planning require practical exercises. The key should be flexibility in technique and innovation in media. The students should be involved in applying concepts and techniques to specific problems and situations. General principles should be derived from case materials and real data. This approach can only succeed if special teaching materials and a highly qualified staff are made available.

Teaching Materials

The ingredients of a successful training course may be said to be: good materials, eager and competent students, and a faculty which knows the materials and has prepared the course thoroughly. At the present time, there is a shortage of good teaching materials arising out of the experience and experiments of the teaching institutions themselves – especially materials in printed form. However, there is a fair amount of theoretical material which has been adopted from the related fields of education, economics, statistics, and sociology.

The materials required for teaching educational planning may be divided into three groups:

a) Materials for teaching related concepts of education, economics, sociology, public administration, political, social, and cultural development, and for demonstrating the fundamental relationships between educational planning and economic and social planning. Teaching materials are readily available in English on the basic concepts (except in the case of public administration) but it is often difficult to find suitable materials on the fundamental relationships. It may be noted that further work is being done (with which IIEP will be associated) to compile a more closely related bibliography.
b) Materials of general applicability to the techniques and processes of educational planning. Here much work remains to be done. There are no textbooks or manuals which spell out in practical terms the technical aspects of educational planning as distinct from manpower planning. The UNESCO publication "Elements of Educational Planning"* provides a general guide.
c) Schematic materials and comparative data on particular countries and regions in order to create realistic and problem-oriented teaching materials a variety of studies and data are needed. These include prepared case studies on key problems in selected countries, economic and demographic surveys, educational statistics, cost data, existing plans, samples of questionnaires, architectural plans, etc.

An effort is being made by the International Institute for Educational Planning in association with departments of UNESCO and other institutions to contribute to four types of materials for group instruction and self-study. They include:

a) Texts on methodology. Two book-length manuscripts by John Chesswas and Hector Correa are being prepared and revised respectively.
b) The Booklet series, "The Fundamentals of Educational Planning."
c) Tape recorded instructional units for experimental use by selected centres (lectures from the IIEP training program)
d) Case studies of key aspects of educational planning in selected countries (so far, mainly African case studies). Major studies of educational planning in two developed countries. France and the Soviet Union, are in preparation.

Staffing of Training Courses

In approaching this question it may be useful to consider the concept of "minimum critical mass," namely the minimum diversity of full-time and part-time staff which will permit the training institution to function effectively. This will vary. Among the variables involved are:

a) The size and mix of staff in view of the subjects in the course and the number of courses;
b) The balance between teaching, research and administrative duties;
c) The desired qualifications of teaching staff;
d) Their recruitment and conditions of work;
e) The facilities necessary for their satisfactory performance.

The size and mix of staff might follow the balance of subjects to be taught and the method of integrating the lectures, seminars, practical exercises, etc. This is staff intensive, since much time will be required to prepare teaching materials and exercises, read students' work, undertake classes and individual consultation. And teaching tends inevitably towards mediocrity unless it is based on relevant research.

In the selection of staff there must be a balance of experience in field work, post-graduate university study, and participation in the IIEP training program. And the teaching effectiveness of staff members is normally enhanced if they are engaged in consultancy which brings them into close contact with educational planning problems of the specific geographical area in which they are working, or in research by which they can maintain their expertise at the frontier of knowledge within their area of specialty. The "critical mass" of the faculty should take account of all these needs.

The number of national and international institutions requiring teaching personnel in educational planning training may be expected to grow. It is necessary, therefore, to ensure full co-operation between the IIEP and specialized universities.

Institutional Co-operation

Possibilities exist for co-operation and support within the international community interested in educational planning. This community is made up of the relevant government departments in a growing number of countries, UNESCO, specialized departments of certain international organizations, bilateral agencies concerned with support for educational planning, international and national research and training institutions, and specialized departments in national universities (some of which might be described as "international" in scope).

Periodical meetings among the members of the training community can help individual institutions make their work more effective. They may also make possible the exchange of teaching staff or specific co-operative measures for the training of teaching staff. Meetings might also work out recommendations to the appropriate authorities for closer co-operation between training and research institutions and national planning groups.

A rough division of labor seems to be implied. The process of educational planning is, by its nature, an uninterrupted scientific task involving the collection and scientific analysis of material. Those participating in training courses should be involved in such work and should undertake group activities using prepared materials. Their professors should undertake scientific work on particular topics to produce the statistical materials and case studies of particular countries required for the training program. There may also be possibilities of co-operation on defined research projects as between "international" universities, the teaching staff of UNESCO Regional Centres, and specialized national universities or government departments.

*UNESCO, *Educational Studies and Documents, No. 45.*

A major task of IIEP and the specialized universities is to undertake fundamental research including projects on the methodology of educational planning. The main research tasks involved have been defined in the IIEP publication "Educational Planning: An Inventory of Major Research Needs."

The distribution of information concerning research findings or research intentions involves considerable labor and expense, but it should be considered. Meanwhile publications in this field are listed in a number of bibliographies (periodically revised), including that prepared by IIEP. In addition, a number of journals contain bibliographies, abstracts, and reviews of articles and books of some relevance to educational planning.

Thus, in research and training, greater co-operation among the members of the educational planning community now seems desirable and possible. Perhaps the major task is to ensure that the organization of training and related research by the different bodies is so framed that it contributes effectively to the practical tasks of educational planning.

The Training and Use of Educational Planners

Cicely Watson

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It was agreed that Mr. Lyons would deal with the training of educational planners in general and I would speak to the program of study we intend to offer at OISE which, initially at least, is geared specifically to the needs of Ontario as I see them. I use "I" not in an egotistical sense but to admit my responsibility for what follows. The planning courses of study, thus far at least, have largely been the product of my thinking about the training and use of educational planners in this province.

This is the first year there has been academic staff in the Planning Department. In a series of staff meetings we have defined more precisely what each component in the course of study might cover, but there has been no change in the general plan which I formulated two years ago. However, I expect there will be considerable reorganization after we review next year's experience, and begin to formulate a common "philosophy of educational planning." Already there is some evidence what we are ceasing to be traditional educators, economists, sociologists, town planners, demographers and engineers embedded in our separate disciplines. We are beginning to coalesce into a team. This, as you know, takes time.

First, why bother with a separate course? Is it necessary to have special graduate training for planners? After looking at the traditional courses of graduate study in education, my conviction grew that none was entirely suitable for a planner. Certain courses may be desirable and useful, but they cannot substitute for a core of specialized theoretical and technique courses not provided elsewhere. The subjects most closely related were those in educational administration. There might indeed be some overlap, which we must try to avoid by having our students take their subjects as options. But it seemed to me that administration courses were designed to produce two main types:

a) Graduates who might become operating personnel in the school system (principals, inspectors, etc.)
b) Graduates who might become academicians and scholars concerned with the study of large organizations, of management theory, or the social psychology of systems.

If operating personnel with municipal or provincial school systems are ever designated as "planners" and expected to perform in more than name, then they must be given specialized training, and their unique functions and use must be recognized by administrators.

There was one other consideration. Planners in the system should be drawn not only from the ranks of schoolmen who have been given special training, but also from groups who do not come from the schools but from the university graduate departments of economics, town planning, sociology, geography and engineering – all these after they have received additional training, which should include educational theory.

So we arrive at one of the first decisions made. We would not require, as is so often the case with graduate studies at OISE, teacher training and classroom experience. In fact, we would try to recruit a mixed student group representing all the streams mentioned above, but we would give priority to persons whose duties involved some school planning, curriculum or staff planning, or short-range budget planning.

Second, if special courses were to be provided, should they be "short" courses (in-service training courses) or degree courses, and if the latter, to what level? I was intrigued to find in July when I went to the UNESCO Conference in Paris, which Mr. Lyons has just discussed, that I was in agreement with representatives from Asia, the Middle East, Africa and Eastern and Western Europe that the minimum time to enable one to give even preliminary training in planning was one year. Last spring, when I outlined a series of planning courses for our Director, the shortest was for one academic year and one summer school. There is nothing magic about ten months, of course. A longer period is preferable. But it is difficult for administrators to obtain leave of absence for two or three years.

We expect eventually to give many programs, including short courses, but we must avoid trying to do everything at once. So for the first year we have decided to offer a one-year M.Ed. course and the beginning of the M.A. course which generally requires two years.

The M.Ed. program is identical in length to comparable programs in other OISE departments. It extends over one academic year and one summer school, may be taken part-time in study after hours and in the summer, consists of eight half-courses, and requires no thesis.

The first year of the M.A. program includes much of the work of the M.Ed. This is followed by several specialized seminars, a thesis, and supervised work in an educational planning office. Until planning offices are established among the municipal boards or in the Department of Education, this supervised work will be either in our Department at OISE or in the office of the Metropolitan Toronto School Board under Dr. Gerald Ridge.

We shall offer the first basic course in planning theory and techniques in the summer of 1967, taught by a team consisting of Dr. Ridge, Mr. Saeed Quazi, our town planner, and me. The complete one-year program will be offered for the first time in 1967-68.

Which leads me to other decisions we have made.

Assuming that the educational system of the province (and by that term I include all post-secondary education as well as elementary and secondary) ought to have trained planning personnel, who would be our clients? And where would our "product" be used?

Some of my thinking about the "clients" has been described. If the courses were set up as regular graduate studies at OISE, applications would come in, eventually, from educators in Ontario and other provinces. But would all these be equally desirable? Would all make equally successful planners?

We had agreed to give priority to persons already involved in planning work or related responsibilities. We also recognize that because their prior study might be unrelated, some remedial work might be necessary, particularly in statistics and economics. Apart from such prerequisites, the general admission regulations of the University of Toronto must apply. Students with degrees in town planning or engineering, or special training in statistics, economics, sociology or geography might be exempted from part of the course. Applicants who did not have a first degree might be admitted as "special students" but could not, of course, be granted the degree. Students drawn from outside the educational system must take certain extra courses in educational theory.

Where would our product be used? This would affect the nature and emphasis of the course. Also one could not, in all conscience, encourage men and women to undertake a year of graduate study if there was little prospect of selling their new skills. In short, for our proposed courses I took some of the study steps involved in all educational planning. In terms of the "demand for places" the courses were hardly justified. There was no pent-up body of students demanding this kind of study. Indeed, few educators even knew what was meant by the term "planning." On the other hand, once the program was tentatively listed in our Calendar we did receive a number of inquiries from teachers who wanted to undertake graduate studies and were attracted by the course. But these few would not be sufficient to justify offering our new programs.

So with the help of a research assistant, Mrs. Sharon Burnham, I did a rather unsophisticated "manpower demand" study. This could not consist of estimating the number of job vacancies which exist or which might be expected, given past trends. Instead, we estimated the number of planners who ought to be employed in the Ontario system, given the work to be done.

Before I talk further of this let me say in passing that it would not be difficult to document in a limited way how many actual job vacancies there must be in this province, and how easily we could place our first graduates. Just to list the requests for planning advice and service which we have received this year – from private consulting firms, from individual institutions such as universities and community colleges, from the administrators of school boards and from principals of schools – shows a considerable need.

However, in the first few years we would have to limit the size of our classes because the courses would be experimental. We decided there would be a few Ph.D. candidates. Because of the length and nature of their study we expect they would be employed at the national or provincial planning level, and there are not planning units in Canadian provincial Departments of Education. Nor is there yet a national education office. Theirs would be a macro-planning course, and until we had a clearer notion of the background of the candidates and the systems in which they might work, the program would develop slowly and be tailor-made for each individual. This has happened.

So far we have some seven candidates for a two- or three-year doctoral program. They are strongly oriented to work in the underdeveloped areas at the supra-national level with UNESCO or OECD. Two are Africans, one is a West Indian, two are Englishmen, one is a Torontonian, and a possible seventh is Greek. Thus it seems likely, if we leave it to student initiative, our program, which was conceived for a highly industrialized province, will be skewed toward the underdeveloped areas. Even when the courses are fully operational we shall probably have to limit the number of doctoral students because of their great demands on staff time. Remembering that many doctoral programs are for three years, this means, in effect, that we could only take one or two new candidates per year.

What of the numbers at the Master's level? Their course of study lasts only one or two years.

Looking at the amalgamation of our rural schools, the migratory shifts in our population, the rapid growth of our urban areas, the added planning complication of the Roman Catholic separate schools, and the diverse ethnic background of much of our immigrant population, it seemed to us the great initial need was for micro-planners who would work at the local level. Accordingly, we studied the administrative structure of our system.

At the moment, in a big municipal board almost every administrative official has been a teacher. He received in his teacher education some educational theory. In his graduate work and in his training before he became a principal or an inspector he did further studies in educational theory – mainly in supervision and curriculum; sometimes in administrative theory, personnel management, etc.

Thus a local Director of Education has a number of persons he can call on for advice about staff relations, additional subject courses, modifications in teaching methods, the content of courses, test administration, and the like. But none of his staff generally has had training in long-range planning, estimating population shifts and the numbers of students who might become his clients, looking at the survival patterns of his secondary schools to see if they are changing, estimating where a special modification in program is required to face a social problem, watching changing land use in his jurisdiction to advise on school siting, etc. We estimated that every school system with more than 10,000 pupils would require at least one full-time planner, apart from the macro-planners who would be employees of the Department of Education.

For the province as a whole we followed the reorganized structure of the Program Branch of the Department of Education. This province is divided into ten area superintendencies. These are sub-divided into municipal and provincial inspectorates with supervisory personnel at the public and secondary levels. In five areas the provincial inspectors are further divided into public, secondary, and elementary separate school inspectors. In three (West Central, East Central, and Eastern) only secondary education is under area supervision. But the organization is changing and the details are unimportant – there are area superintendents' offices from which groups of inspectors work. And much of the advice an inspector has to give should be based on firm planning information. Each area should have long-range plans for the development of its schools. A decision on the need for a new school, the siting of a school, the nature of the school – composite or specialized – the staff needed, courses required to provide a good base for the new post-secondary courses to be offered in the district, the request that new post-secondary courses be added, etc., – all these should not be ad hoc decisions based only on short range estimates of one or two years' need. They should fit into a long-range plan. Basic data to make such decisions should be generated by a small planning unit, initially one person, providing advisory service to the superintendent and the inspectors. By locating the offices in the urban centres of each region and diffusing them across the province we would have a network of planners for the detailed implementation of macro-provincial plans and the detailed study of local needs.

All this, of course, is long-range speculating. We have no Department of Education officials in 1967 designated as planning officers. It would be an important advance if a number of inspectors were even encouraged to take our M.Ed. by part-time study.

We expect most of our M.Ed. product, therefore, to work at the local level, and the course is strongly micro-planning in its orientation. Three of the eight half-courses deal extensively with school planning, site planning, land use, the work of a local office, local sources of data and aid, the relations of planning to local administration and educational research, and the local politics of education. There are also courses on planning and performance budgeting, the economics of education, educational sociology, planning statistics and techniques, and demography.

The Master's degree student whose work is likely to be in a single institution – e.g., for a university or a community college – will have options provided that are specially related to higher education. For those students who can spend time for the two year M.A. instead of the one year M.Ed., the emphasis shifts from the craft of planning to a firmer research base. In the second year the student prepares a series of plans related to the programs of each educational level, and takes special seminars in one subject area.

We have worked out not the "market demand" but what we thought will be the market demand if we can persuade educational administrators that the planner is a staff advisor they will find useful and whom they ought to employ and also that we can train such personnel. In working out this hypothetical demand, based on the arbitrary figure of one planner for every 10,000 school pupils, we came up with the figure; using this as a target we then worked out a plan whereby we might provide such persons with the equivalent of one or two years of training within five years. This was not entirely an academic exercise. It forced us to look at the following:

1. The use of our product in relation to the work he might do.
2. The minimum subjects of study we must provide to ensure a certain flexibility – assuming that graduates would be employed as planners but would be working on varied problems.
3. The number of students we should try to recruit, keeping in mind our need for a small group until we move beyond the first two experimental years, and also the numbers which might eventually be employed.

There is one final group of students I have not discussed. What of the macro-planners of our own system, those who might work in the Ontario Department of Education? As I mentioned above, the demand for places for macro-planning courses of a very high level (Ph.D.) is coming not from our own system but from abroad. I do not think this situation is likely to change except in response to conscious policy. Ontario students seeking macro-planning training, whether educators or students from the social sciences, will have to sell their skills abroad unless there are planning offices in the provincial Department of Education and the Department of University Affairs, or lacking a formal office, some evidence that administrators will employ personnel to undertake long-range study of our educational needs. If not, the few individuals led to this kind of study through intrinsic interest and curiosity can be absorbed in academic and research work.

Ideally the macro-planner for our system should be an educator. We have no tradition of employing non-educational personnel in our central administration. At least the director of the planning unit should be an educator. After some brief experience as an administrator he should (again ideally) undertake a Ph.D. program in educational planning. As a student in such a program he would rub shoulders with the chief members of his team – the students of economics, with a good background in human resource planning; students of sociology, preferably those who have shown an interest in urban sociology, industrial sociology, or problems of stratifications and social selection; students from town-planning, planning, geography, or demography, particularly those who have been concerned with migration and population change; and mathematicians, engineers, or statisticians interested in systems analysis. His planning team will include many of these, and he will have to learn something of their language just as they will have to learn the language of the educational system.

The eventual characteristics of this course are by no means set in our minds. At the moment we have doctoral candidates who have no background in planning. Almost all at present are students who have a master's degree in economics or in sociology and now seek a broader training. When we have candidates with our M.Ed. or M.A. in Planning, the Ph.D. program will change. At present we feel the Ph.D. student should be required to take reading courses and advanced seminars in four areas – statistics and methodology (this will include work in computer sciences and systems analysis); the economics of education; the sociology of education; educational theory (i.e., curriculum development, psychology, measurement, educational history, and administration) – and specialized work in one area related to his original discipline.

Finally, in justification for beginning the training effort which I suspect many educators in Ontario consider not only unnecessary but irrelevant, let me quote from the writing of Kjell Eide, the Director of the Secretariate for Planning of Education and Research in Norway and one of the early educational planners with the OECD:

"Government administration is a very complex organizational system tending to develop – like most systems of this size – its own internal traditions and institutional policies. This tends to cause major obstacles to the implementation of new directions. The introduction of planning – and educational planning in particular – may be regarded as a response to this situation. Greater adaptability to changing situations requires some insight into present trends and their projection into the future."